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TIMUCUA I: PROSODICS AND PHONEMICS OF THE MOCAMA DIALECT

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0. Introduction
1. Theoretical considerations
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5. Reduction of phonemes

0.1. The Timucua language was spoken in an area which may be generally defined as northern and central peninsular Florida. The western limits can be tentatively set at the Aucilla River in northwest Florida, and the southern limits at the Tampa Bay region on the Gulf coast and the Indian River region on the Atlantic coast. In the north Cumberland Island and, roughly, a line from there north of the Okeefenokee Swamp west to the Aucilla set the boundaries of the Timucua area.

Precise origins of the Timucua-speaking peoples are still not clear, nor has it been possible to define fully the initiation and content of culture traits in this area other than to refer to them as part of the broad Southeastern tradition. Spanish colonial historians generally used the term 'Timucua' in three senses: to distinguish the dialects of north and central peninsular Florida from those of the Calusa of South Florida and the Muskogean Apalachee of northwest Florida beyond the Aucilla River,[1] to designate a mission area, or to indicate a particular political subdivision within this linguistic area. The latter, also referred to as Utina, was probably located to the west of the St. Johns River, although some historians would prefer to consider it a more general term, referring to the area east of the St. Johns and extending an indeterminant distance to the west of the river.[2] The first two definitions were almost synonymous.

Within the Timucua-speaking area historical references are to villages and provinces as political units, rather poorly defined both in organization and boundaries.[3] Some correlation has been made between political subdivisions and ethnological and archeological units,[4] but this work is far from complete. In a very few instances political, ethnological-archeological, and dialect units seem to be identical, e.g. Potano, but it is more usual to find several political subdivisions within an ethnological-archeological area. Dialects seem to cut across both boundaries, although, if we follow Goggin, the three-fold dialect grouping presented here dovetails well with his Eastern, West-

[1] Francisco Pareja, Cathecismo y examen para los que comulgan en lengua castellana y timuquana (Mexico City, 1627); Irving Rouse, A Survey of Indian River Archeology, Florida, Yale University Publications in Anthropology, 44: 39 (New Haven, 1951).

[2] Luis Jerónimo de Oré, The Martyrs of Florida (1513–1616) . . . trans. by Maynard Geiger, Franciscan Studies, XVIII: 114–115 (New York, 1936); John R. Swanton, The Indian Tribes of North America, BAE-B, 145: 147 (1952); John M. Goggin, Culture—Archeological, Ethnological, and Linguistic—in North Central Florida, pp. 3–4 (MS in progress, Gainesville, Florida).

[3] John R. Swanton, Early History of the Creek Indians and their Neighbors, BAE-B, 73: 323–330 (1922).

[4] John M. Goggin, Space and Time Perspective in Northern St. Johns Archeology, Florida, Yale University Publications in Anthropology, 47 (New Haven, 1952); John M. Goggin, An Introductory Outline of Timucua Archeology, Newsletter of the Southeastern Archeological Conference, III, No. 3: 4–17 (1953); Irving Rouse, A Survey of Indian River Archeology, Florida, Yale University Publications in Anthropology, 44 (New Haven, 1951).

ern, and Southern major archeological-ethnological divisions.[5]

Timucua speakers dominated the area defined above until the advent of the Spanish in the late 1500's. By 1700 missionary efforts had transformed the Timucua into peaceful groups. During the early 1700's the invasions of North Florida by Muskogean-speaking peoples from other areas of the Southeast obliterated most of the Timucua-speakers and left a gap which was soon filled with Muskogean groups. By 1728 only a few survivors of these inroads were left, in the vicinity of St. Augustine, where they established small settlements. Some of these survivors were probably absorbed culturally as well as physically by the invading Creeks, but most seem to have been sent to Havana when Florida changed to British hands in 1763–64. Suffice it to say that the Timucua groups no longer existed as separate, recognizable entities by the middle 1700's.[6]

0.2. Exclusive of place names there are only eight sources for the Timucua dialects, all dating from the 1600's. Of these, five are the works of Father Francisco Pareja, a Franciscan missionary who began his service in Florida in 1595. Pareja was stationed at the mission of San Juan del Puerto, which has been tentatively located near the mouth of the St. Johns River on Ft. George Island.[7] As missionary and PROVINCIAL[8] of the religious province of Santa Elena, including Florida and Cuba, Pareja became the leading Timucua scholar, producing records of distinct linguistic and ethnographic value. His published works include: Cathecismo en lengua castellana y timuquana (Mexico City, 1612), Catechismo y breve exposicion de la doctrina christiana (Mexico City, 1612), Confessionario en lengua castellana y timuquana (Mexico City, 1613), Arte y pronunciacion en lengua timuquana y castellana (Mexico City, 1614), and Cathecismo y examen para los que comulgan en lengua castellana y timuquana (Mexico City, 1627).

Two other important primary sources for Timucua are the works of Father Gregorio de Movilla, who was DEFINITOR of the province of Santa Elena for a period following 1621.[9] His published works are: Explicacion de la doctrina cristiana . . . en lengua tinqua de la Florida (Madrid, 1631; Mexico City, 1635) and Forma breve de administrar los sacramentos . . . traducido en lengua Floridiana (Mexico City, 1635). The final primary source is a letter written on January 28, 1688, to Charles II of Spain. This has been published in facsimile form by Buckingham Smith.[10]

The most valuable secondary sources on the language are the articles of Gatschet and la Grasserie.[11] Although the basic worth

[5] John M. Goggin, An Introductory Outline of Timucua Archeology, Newsletter of the Southeastern Archeological Conference, III, No. 3: 13 (1953).

[6] Winston W. Ehrmann, The Timucua Indians of Sixteenth Century Florida, Florida Historical Quarterly, XVIII: 168–191 (Tallahassee, 1940); John R. Swanton, The Indian Tribes of North America, BAE-B, 145: 150–151 (1952); John M. Goggin, Space and Time Perspective in Northern St. Johns Archeology, Florida, Yale University Publications in Anthropology, 47: 25–27 (New Haven, 1952).

[7] John M. Goggin, Space and Time Perspective in Northern St. Johns Archeology, Florida, Yale University Publications in Anthropology, 47: 25, 83, Fig. 9 (New Haven, 1952).

[8] The position of PROVINCIAL, or leading missionary of a religious province, was one which brought Pareja into contact with many Timucua groups and gave him ample opportunity for close observation. Each province in the Franciscan Order also had guardians of the convents and friaries as well as a DEFINITOR in charge of internal coordination and regulation of the province.

[9] Maynard Geiger, Biographical Dictionary of the Franciscans in Spanish Florida and Cuba (1528–1841), Franciscan Studies, XXI: 79 (Paterson, New Jersey; 1940).

[10] Buckingham Smith, Two Documents in Two of the Early Tongues of Florida, Apalachian and Timuquan (Washington, D. C.; 1860).

[11] A. S. Gatschet, The Timucua Language, APS-P, 16: 626–642 (1877), 17: 490–504 (1878), 18: 465–502 (1880). Raoul de la Grasserie, Esquisse d'une Grammaire du Timucua, Langue de la

POLITICAL UNITS OF THE TIMUCUA LINGUISTIC AREA

FIG. 1

of these articles is not questioned from an ethnographical viewpoint, they are of relatively little linguistic value. Fortunately Pareja himself was a meticulous observer, and his orthography of Timucua words coupled with his copious explanations make it possible to suggest the phonemic system presented in this paper.

0.3. The following tentative correlations can be set up between the political units and the Timucua dialects as determined from the sources given above. Political units are indicated in parentheses following the dialect name. Exact dialect boundaries can not as yet be drawn.

A. Eastern division
   1. Yufera ? (Yufera)
   2. Tucururu (Icafui, Yui, Tacatacuru)
   3. Mocama (Saturiba, Mayaca, Mayaguaca, Surruque, Urubia)

B. Western division
   1. Tawasa ? (Tawasa)
   2. Utina (Yustaga ?, Onatheaqua, Timucua)
   3. Potano (Potano)

C. Southern division
   1. Acuera ? (Acuera, Ocale)
   2. Tocobaga (Tocobaga, Mocoço, Oçita or Pohoy)

The Mayaca and Mayaguaca are often referred to collectively as Agua Fresca, Agua Dulce, or Fresh Water Indians, while the Surruque and Urubia seem to have been

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Florida (Orleans, n.d.); Textes Analysées et Vocabulaire de la Langue Timucua, Proceedings of the International Congress of Americanists, No. 7, pp. 403–437 (1888); Vocabulaire Timucua (Orleans, 1892). Gatschet and la Grasserie, Textes Timucua, Revue de Linguistique et de Philologie Comparée, 22: 320–346 (Paris, 1889).

called Agua Salada or Salt Water Indians.[12] In the above scheme Pareja's dialect divisions have been grouped as follows: Yufera remains unchanged; Itafi (Icafui), Tucururu, and Oconi (Yui?) become Tucururu; Mocama, Agua Fresca, and Agua Salada become Mocama; Timucua has for clarity's sake been changed to Utina; Potano remains unchanged; and Acuera remains unchanged.[13] Pareja was not familiar with the Tocobaga dialect. The Tawasa, not mentioned by Pareja, were located in West Florida near the junction of the Chattahoochee and Flint Rivers in the early 1700's; both earlier and later they were found around present Montgomery, Alabama. Exact linguistic position of the Yufera, Tawasa, Yustaga, and Acuera-Ocale is not clear at present. The Yustaga political unit, on the linguistic border between the Muskogean Apalachee and the Timucua proper (Utina), probably consisted of speakers of the Utina dialect of Timucua rather than of Apalachee speakers. No definitely Yustaga words have been recorded, but the chiefs of the villages of Asile, Machaba, and San Pedro, all Yustaga settlements, signed the Timucua letter sent to Charles II mentioned earlier in this paper. With the exception of the chief of Asile they did not sign an Apalachee letter sent to Charles II along with the Timucua document.

The name Timucua, generally applied from Spanish colonial times till the present to speakers of all the above dialects, was taken from the dominant political unit of the western division. In the eastern division the Saturiba were politically dominant, and Pareja states that the dialects of these two regions, Utina and Mocama respectively, served as major idioms throughout the entire Timucua area.[14] The bulk of the linguistic data on Timucua represents the Mocama dialect, spoken in the region of San Juan del Puerto, where Pareja completed the majority of his service. This is the dialect to be considered here.

1.1. It is often a difficult matter for several workers to concur on the phonemic analysis of a single set of linguistic materials taken directly from the speech of living informants, and it is fully realized that there is even more room for disagreement when phonemic analysis is based purely upon written data, particularly if the data were gathered before the development of phonemic theory.

Such inadequate data are all we have to work with, however, in the case of many native American languages, and this writer feels that they should therefore be analyzed. Accuracy of analysis should be measured both in terms of the analyst's competence and in terms of the conceptual framework behind his techniques. Consequently, the conceptual framework of the present analysis will be briefly described here.

1.2. It is felt that the term 'phoneme' represents linguistic, and therefore psychological, reality, requiring us to admit but one 'correct' phonemic analysis of the speech of any specific group of people on a given time level and in a defined geographical area. It is also felt that analysis will in every case fall short of perfect definition because of temporal, spatial, idiosyncratic, and status variables, and because of the difficulty of evaluating the psychological effects of general culture change, revealing themselves through such complex traits of overt personality as language.

Although a vital and meaningful segment of total culture, the phoneme is not considered a static absolute in the sense that all speakers of a language utilize identical

[12] Irving Rouse, A Survey of Indian River Archeology, Florida, Yale University Publications in Anthropology, 44: 36–39 (New Haven, 1951).

[13] Francisco Pareja, Arte y pronunciacion en lengua timuquana . . . ed. by Lucien Adam and Julien Vinson, Bibliothèque Linguistique Américaine, XI: xxi (Paris, 1886).

[14] Francisco Pareja, Cathecismo y examen para los que comulgan en lengua castellana y timuquana (Mexico City, 1627).

phonemes. The variation factors mentioned above keep this level in constant flux through space, time, and individual, making it impossible to define a single phonemic reality for a language. Though not truly definable in a broad sense, a phase of phonemic reality can be rendered relatively static for research purposes by the investigator-informant relationship. The investigator's analysis, however, may or may not be related to the specific phase of phonemic reality, depending upon various factors.

1.3. I would call phonemic reality, in general or any phase, perception-level$_1$, the producer and perceiver of phonemes being one and the same person. The investigator who derives his data from living informants, utilizing level$_1$, and through spoken medium, is in his analysis once removed from the original. His perception of level$_1$ I would refer to as perception-level$_2$. If his analysis, either in written or spoken form, is utilized as primary data and a re-analysis made, this would be perception-level$_3$, and so on to perception-level$_n$. Perception of level$_1$ on level$_{2...n}$ is always distorted by: 1) the constant flux of level$_1$, even in a single informant; 2) the difficulty of recognizing and evaluating the interaction of cultural and psychological change as expressed in language; and 3) investigator-feeling, including degree of competence in observation and analysis of linguistic phenomena in terms of present methodology, the conceptual framework used by the investigator, and his rapport with his informants. Such distortion will probably never by done away with no matter how refined our methods of phonemic analysis become, because the investigator is a product of his own cultural environment, and because he is dealing, perhaps exclusively, with variables rather than constants.

1.4. In general it might be suggested that analysis on successive levels of perception is progressively farther from phonemic reality, and validity or approach to phonemic reality is therefore potentially less and less. I say potentially since it seems that validity may be strengthened on any level by increasing what we have called investigator-feeling. It is probably safe to say that validity of analysis on level$_{2...n}$ varies directly with investigator-feeling. That is, if investigator-conceptualizing, investigator-competence, and investigator-rapport increase with each analysis, the validity increases from level to level of perception; if feeling decreases with each analysis, validity decreases. The possibility that feeling, and hence validity, will remain static from level to level may be eliminated, for it negates cultural change and personality variation.

1.5. While these varying distortions of perception-level$_1$ cannot be done away with, for utilitarian purposes of research they can at least be recognized. Mary Haas[15] has suggested the use of a special term for sound units reconstructed from data gathered before the development of phonemic theory; that is, for the lower perception level when validity generally seems to be increasing from level$_2$ to level$_n$. Today we generally assume that analysis on level$_2$ with a relatively high degree of investigator-conceptualization, competence, and rapport, is as close to a phase of level$_1$ as we can get for a single investigator-informant relationship. We usually call analysis on level$_2$ 'phonemic,' which is justifiable from a practical viewpoint. If, however, validity on any level is low, particularly with regard to conceptualizing, but seems to rise on a succeeding level, it would perhaps be wiser to refer to 'probably-meaningful reconstructed sounds' rather than 'phonemes.'

Although the present analysis, distinctly on level$_3$, does not utilize such special terminology, it should be realized that the term 'phoneme' here is used only for conventionality's sake. The reconstructed sound units discussed here, because of the perception level involved and the question of

[15] Communication from Mary R. Haas, University of California at Berkeley, October 1955.

validity, are conjectural. They may or may not be phonemes on perception-level$_1$. It is strongly recommended that a terminology be adopted in linguistics which would recognize perception levels; this is particularly important for linguists working with native American linguistic materials gathered during the protohistoric period, where it is usually necessary to work on level$_{3...n}$ with purely written records. The stress currently placed on the salvaging of linguistic materials from living informants, working on level$_2$, is naturally of importance; however, the salvaging of materials from no longer spoken languages is of equal importance. While we have developed field and analytical techniques for gaining rapport between level$_1$ and level$_2$, we have neglected the interval between level$_2$ and level$_n$ and its relation to phonemic reality. Without clarification of perception levels through precise terminology and methodology, published reports, particularly on level$_{3...n}$, become the understandable butt of confusion and adverse criticism.

2.1. Syllables are of the forms V, CV, and VC, the latter of infrequent occurrence in all positions and absent in word-final position, e.g. áya (aya) *mountain*, káya (caya) *hen*, kí (qé) *he looks for*, ístiku (istico, estico) *bad*, wánihi (guanehe) *wolf*, múkuwìni (mucubine) *tear*.[16] Consonant clusters are limited to intersyllabic -nt- and -st-, e.g. ánta (anta), ístiku. Geminate consonant clusters do not occur. Vocalic clusters are limited to intersyllabic iu, ia, ua, and ai, e.g. híunùma (hiunoma) *measurement*, nía (nia) *woman*, márua (marua) *five*, wákaraikànu (buacaraicano) *to plant*. Syllabic vowel clusters do not occur. Although there are no true diphthongs, speed effects in spoken Timucua may have transformed intersyllabic clusters into close approximations of diphthongs. Intersyllabic vowel clusters always form two syllables in which the first vowel always bears prominence. ViV may in every instance be resolved to VyV, as kúiu ~ kúyu (cuiu ~ cuyu), káia ~ káya (caia ~ caya). Post-juncture iV varies indiscriminately with #yV and seems to represent a consonant phoneme plus vowel, e.g. iáiila ~ yáyila (iaiila ~ yayila). Geminate vowel clusters are rare and will be discussed later.

2.2. Nonphonemic stress accent characterizes Timucua utterances. Words of one, two, or three syllables have stress accent on the first syllable, e.g. yúwu (yobo) *stone*, úkʷu (oquo) *flesh*, kʷí (quí) *and*, nípita (nipita) *mouth*, árukʷi (aruqui) *child*. Words of more than three syllables generally have primary stress on the first syllable with secondary stress on the penult or antepenult, e.g. átimùku (atimucu) *frost*, tírakùkula (téracócola) *best*. Secondary stress is not normally used with two or three syllable words but may appear with one syllable words, perhaps associated with intonation, e.g. tíra (tera) *good*, ákula (acola) *very*, kí (qé) *he looks for*, kì (qe) *it rots*.

Use of the enclitic conjunctions -tí (-té), -kʷí (-quí), -ku ~ hikú (-có ~ hecó) *and* causes the word itself to lose normal stress pattern, primary stress going to the enclitic, e.g. kúyu-ku > kùyu-kú (cuiocó) *and fish?*, čúwuwù-ti > čùwuwu-tí (chuboboté) *and the stars*, húlata-mà-kʷi > hùlata-ma-kʷí (holotamaquí) *and the chief*, tíra-hìku > tìra-hikú (terahecó) *if it be good*. ku ~ hikú with primary stress has a dubitive meaning; when used as a non-dubitive it is prosodized with the preceding word and does not destroy normal stress pattern, e.g. àku-kú (acucó) *and the moon?*, áku-ku (ácuco) *and*

[16] Words and forms in phonemic orthography are not enclosed in slanted lines except where necessary to distinguish them from phonetically spelled forms, usually in brackets, or words written in Pareja's Spanish orthography, usually in parentheses. In phonemic orthography ′ indicates primary stress accent on the vowel bearing the sign, ` indicates secondary stress. V indicates a vowel and C a consonant. # is a juncture marker. All forms cited are taken from Pareja's Arte y Pronunciacion en Lengua Timuquana (Mexico City, 1614).

the moon. Except in the above cases the ultima never receives stress.

2.3. Pitch variation accompanying stress accent is indicated in a very few instances, e.g. kí *he looks for*, kì *it rots*. It may be suggested that secondary stress utilizes a different intonation than primary stress, but since data are few any definite statement at present would be unwarranted.

2.4. The occasional use of geminate vowel clusters in Pareja's orthography, always with primary stress, may indicate vowel length, e.g. tú·ma (tóoma) *all*. Again, however, data are inconclusive.

2.5. The word is not normally a prosodic entity in Timucua because of the extensive use of external sandhi. This occurs between two words if the second begins with a vowel. Such instances are many since word-final C is impossible. Sandhi does not occur with every word in an utterance, however; it is limited to short phrases of compact meaning or to very brief utterances. In all instances -V1 # V2-coalesces to -V1-, e.g. tíra ákula (tera acola) > tíràkula (teracola) *very good*, kúluma úkʷa (coloma uqua) > kúlumàkʷa (colomaqua) *he is carrying the bow*. Occasionally external sandhi is not used with superlatives, e.g. ístiku ákula (estico acola) *very bad*, íwilìka ákula (eueleca acola) *very large*. Data are too limited, however, to define exact environments for external sandhi. Internal sandhi never occurs.

2.6. Words can not be identified within an utterance solely in terms of their phonological elements, e.g. tìrakula-hikú-muháwìliču < tíra àkula-hikú-mu háwìliču < tíra ákula-hìku-mu háwìliču (teracolahecómo habilechu) *it may be that it is very good*. It would be possible to establish phonemic juncture points / # / in the normal utterance above immediately before CV̆- or zeroV̆- and immediately after -V̆CV were it not for three factors: 1) loss of normal stress pattern when enclitic conjunctions are used, e.g. -hikú *and*, subjunctive particle; 2) extensive use of external sandhi, which often destroys normal stress pattern, e.g. tíràkula *very good*; and 3) variance of secondary stress between the penult and antepenult of words, e.g. háwìliču *it may be*. Although juncture points can usually be made as suggested above, e.g. káki-ísinu-karì-ma (caqi isinocarema) *everything which has been said*, juncture marker # within utterances is nonphonemic. These three factors also define both primary and secondary stress as nonphonemic.

3. Consonant phonemes (native) are: p, t, kʷ, k, č, f, s, h, m, n, l, r, w, y. Introduced phonemes, used only in Spanish loan words are: b, δ, g, and rr.

3.1. Stops, all voiceless and apparently unaspirated, are: p, t, kʷ, and k. They are produced at bilabial, alveolar, mid-palatal, and velar points of articulation respectively, mid-palatal [k] always in close transition with bilabial semivowel [w]. Affricate č is produced at a palatal point of articulation, and voiceless fricatives f, s, and h are produced at labio-dental, alveolar, and palatal points of articulation respectively.

Nasals are m and n, produced at bilabial and alveolar points of articulation respectively. Lateral l is produced at a lateral-alveolar point, and flap r, voiced, is alveolar.

Semivowels w and y are produced at bilabial and mid-palatal points of articulation respectively, probably with some friction.

3.2. In Movilla's and Pareja's orthography the following symbols are used for the above phonemes: /p/ - p; /t/ - t, d; /kʷ/ - qu, cu; /k/ - q, c (except when followed by e, i); /č/ - ch; /f/ - f; /s/ - s, c (only when followed by e, i); /h/ - g, h, x, j (rarely), f (rarely); /m/ - m; /n/ - n; /l/ - l, r (rarely); /r/ - r, l (rarely); /w/ - b, bu, gu, v, mu (rarely), hu (rarely), f (rarely); /y/ - y, i (when followed by a vowel in word-initial position).

3.3. Establishment of p, č, f, m, n, and y as phonemic in Timucua is validated by the equivalences in Pareja's orthography, the phonemic nature of these symbols in 17th century Spanish, and by morpho-

phonemic considerations to be discussed in a subsequent paper. Voiceless fricative s, represented as either s or c (before e, i) by Pareja, is a single phoneme, for the letter c before e, i in 17th century Spanish was simply a symbol variant of the s phoneme in that language.[17] Establishment of the remaining phonemic units depends upon the orthographic correspondences discussed in the following paragraphs.

In many cases t ~ d indiscriminately, e.g. manta ~ manda, inta ~ inda, anta ~ anda. The letter t is predominant in all instances, and the letter d most frequent after n. It is possible that [t] and [d] form a phonemic unit /t/, [t] being the dominant member, [d] appearing as an allophone only after /n/; but this unit cannot be postulated with any degree of certainty at present. [t]-[d] form the only consonant allophone group observable.

Pareja states explicitly that the letters q and c (except when followed by e, i) represent a velar stop. He also makes it clear that the combination qu is not to represent Spanish qu before e, i, but rather Spanish cu before any vowel, that is, a mid-palatal stop in close transition with the bilabial semivowel [w]. Mid-palatal [k] is the only consonant followed by [w] in close transition, and deletion of the semivowel in pronunciation "totally changes the meaning" of the lexeme,[18] e.g. pík^{w}inu (piquino) *to hide*, ná-pikìnu (napiqino) *to envy*, ík^{w}i (iqui) *he kills*, íki (iqi) *he climbs*. /k^{w}/ may occur before any vowel, e.g. ík^{w}uk^{w}ânu (yqûoquano) *to honor*.

Another orthographic variation is represented by g ~ x ~ h ~ j, e.g. ytuhunu ~ ytugunu, nihino ~ nigino ~ nijino. In 17th century Spanish all these symbols stood for an unvoiced palatal fricative phoneme.[19] They have therefore been considered symbol variants of a single Timucua phoneme, represented here by h.

Pareja indicates that both l and r were phonemic in Timucua. He implies their values as lateral-alveolar and voiced alveolar flap respectively.[20] Interchange of l and r is extremely rare, and in every case it has been possible to describe one sound as dominant for the particular lexeme.

In Pareja's orthography b ~ v, e.g. mobicho ~ movicho. In his time, as today, the letters b and v were symbol variants for a two-unit phoneme, of which bilabial fricative [β] was the dominant member and bilabial stop [b] the subordinate member.[21] Another correspondence shows that b ~ bu ~ gu, e.g. coboso ~ cobueso ~ cogueso. Intervocalic g had a palatal fricative value [γ] in 17th century Spanish, and it was often interchanged with the bilabial fricative member of the b-v phoneme, e.g. vomitar ~ gomitar *to vomit*.[22] This was particularly so when the fricative was followed by the bilabial semivowel [w], e.g. buevo ~ vuevo ~ güevo < huevo *egg*.[23] If we may carry over this equivalence to Pareja's orthography for Timucua, it would seem logical to suggest that b, v, bu, gu all stood for a sound produced at a bilabial point of articulation. We seemingly have a choice of referring to it as a stop, a fricative, or a semivowel. Since [w] was not phonemic in Spanish and could not be represented by a single symbol without phonetic distortion, while [b] and [β] could be indicated, the variation given above leads us to assume a /w/ in Timucua. At times hu, usually followed by e, i, seems to have represented /w/, e.g. wíča (huecha) *tomorrow*.

[17] Robert K. Spaulding, How Spanish Grew, pp. 155–158 (University of California, 1948).

[18] Francisco Pareja, Arte y Pronunciacion en lengua timuquana . . . ed. by Lucien Adam and Julian Vinson, Bibliothèque Linguistique Américaine, XI: 3 (Paris, 1886).

[19] William J. Entwistle, The Spanish Language, p. 190 (Macmillan, New York; 1942).

[20] Francisco Pareja, Arte y pronunciacion en lengua timuquana . . . ed. by Lucien Adam and Julien Vinson, Bibliothéque Linguistique Américaine, XI: 3, 5 (Paris, 1886).

[21] William J. Entwistle, The Spanish Language, p. 185 (Macmillan, New York; 1942).

[22] William J. Entwistle, The Spanish Language, p. 185 (Macmillan, New York; 1942).

[23] William J. Entwistle, The Spanish Language, p. 260 (Macmillan, New York; 1942).

3.4. All consonant phonemes except flap r may occur in post-junctural position before any vowel, and all may occur between vowels with the exception of subordinate member [d] of /t/, e.g. níwili (nibili) *mouse*, tík^{w}i (tiqui) *fish*, tíki (tiqi) *ear*, wánihi (guanehe) *wolf*, yáwi (yabi) *bone*, písulu (pesolo) *bread*, úluwatàri (ulubatari) *worker*, múku (mucu) *eye*, úkučùa (ucuchua) *door*, čúlufi (chulufi) *bird*, kúla (cola) *feather*, k^{w}ílanu (quelano) *to burn*, háln (halu) *saliva*, líkufàyi (licofaye) *mist*, nía fímitìma (nia femitima) *prostitute*, súwa (soba) *meat*. Phonemes f and s are very rare in post-junctural position, and f is generally rare in all environments in the Mocama dialect. No consonant phoneme or cluster may occur in word-final position, as pointed out in **1.1** and only phonemes s and n may occur in intersyllabic clusters, where the environment is invariably -st-, -nt-.

4. Suggested vowel phonemes are: i, a, and u.

4.1. i is a high close front unrounded vowel [i] with an open alternant [ɪ] before k^{w}, s, and l and in unstressed syllables, e.g. tík^{w}ɪ [tík^{w}ɪ] (tiqui) *fish*, písula [písolə] (pesola) *burned*, híli [hílɪ] (hele) *bare*, níwili [níwɪlɪ] (nibili) *mouse*.

a is a low open central unrounded vowel [a] which becomes mid-close [ə] before mid-palatal stop k^{w}, velar stop k, and in unstressed syllables, e.g. lák^{w}a [lə́k^{w}ə] (lequa) 3rd person possessive particle, áki [ə́kɪ] (aqe) *air*, máčawa [máčəwə] (machaba) *swamp*.

u is a high close back rounded vowel [u] with a mid-close rounded alternant [o] before k^{w}, k, and in unstressed syllables, e.g. úk^{w}u [ók^{w}o] (oquo) *flesh*, múku [móko] (mucu) *eye*, pátu [páto] (patu) *frozen*.

4.2. Reasons for suggesting a three-vowel system for Timucua are inherent in Pareja's orthography. e is usually used for the alternant member [ɪ] of /i/ and for alternant member [ə] of /a/, while o is used for the alternant member [o] of /u/. Correspondences used in his orthography are: i ~ e, a ~ e, u(e) ~ o. The second member of each variation is more frequent in unstressed syllables, pre-junctural position, and in the alternant environments listed above, than in stressed syllables, while the first member, assumed dominant in each case, is more usual in stressed syllables. The values assigned to vowels, however, are certainly generalized. From Pareja's orthography it would seem that free variation can exist in many different environments, which can not be adequately defined since we lack data on spoken Timucua. Such variation tends to indicate that the subordinate members of phonemes i, a, u are not phonemic in themselves.

4.3. The environments of vowels are very wide. They may occur in both pre-junctural and post-junctural positions and before and after all consonant phonemes. Vowel clusters are limited to intersyllabic iu, ia, ua, and ai, the latter of rare occurrence (see **1.1**).

4.4. Some tentative correlations may be drawn between stress, intonation, vowel quality, and vowel length. They are based on a minimum of data and must therefore be considered highly speculative. Primary stress seems to have been accompanied by a different pitch than secondary stress (see **1.3**), and primary stress occurs most frequently on vowel qualities [i], [a], [u]. The only indications of long vowels are found with primary stress (see **1.4**). Secondary stress also occurs most frequently on vowel qualities [i], [a], [u], but we have no indication of vowel length. Syllables of even stress generally exhibit vowel qualities [ɪ], [ə], [o], intonation and vowel length unknown.

5. Reduction of phonemes is limited to possible consolidation of /w/ - /u/ and /y/ - /i/ to /u/ and /i/. Such a procedure has some advantages, to be examined in a later paper, but they are so slight that they do not necessitate reduction.

LINGUISTIC FORMS AS SYMBOLS OF PEOPLE*

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0. Introduction
1. Gross check by world areas
2. Gross check within North America
2.1 Iroquois
2.2 California culture area
3. Hopi-Luiseño-Tübatulabal
4. Chewa-Zulu

0. A study of the vocabulary used by grammarians to describe the various parts of speech[1] reveals the presence of words which etymologically and directly relate to words also used to describe the sexual functions of man and woman; for example, copula, perfect, conjugation, eventing, and substantive. On the basis of this study it was induced that the sexual functions of man and woman have their counterpart in linguistic forms possessing similar functions. The following hypotheses were formulated: (1) verb symbolizes woman and (2) noun symbolizes man. If the initial hypotheses are correct, it follows that (1) verb-based languages symbolize matricentered cultures and (2) noun-based languages symbolize patricentered cultures. That is, I expect that if a society is centered about females such that there is matrilineal descent, matrilocal residence, matri-clans, and matrilineal extended families, there should be a comparable clustering of the linguistic elements about the verb and/or greater verb complexity and enhancement. Contrariwise, where the society has centered itself about males such that there is patrilineal descent, patrilocal residence, patri-clans or moieties, and patrilineal extended families, there should be a comparable clustering of the linguistic elements about the noun and/or great noun complexity and enhancement. By verb enhancement I mean noun incorporation into a complex verb structure and/or a great number of verb classes. By noun enhancement I mean the development of case in nouns and/or a great number of noun classes.

1. It is well known that American Indian languages taken as a whole are decidedly verb-based as compared to other languages of the world. As a preliminary check of the hypothesis we should expect that America as compared to other areas will be relatively higher in matri-centeredness. The following data are from Murdock.[2]

	Africa	Eur-asia	North Amer-ica	Oce-ania	South Amer-ica
matrilocal	3	2	16	8	9
patrilocal	53	24	23	39	7
matrilineal	11	2	20	15	3
patrilineal	45	23	13	21	4

No test of significance is offered for these figures. It is sufficient to note that the relatively higher proportion of matrilineal descent and matrilocal residence for America indicates reason for pursuing the hypothesis with severer tests.

2. Narrowing the perspective down further let us look within America itself and pick extreme cases at either end of the

* This study was done while a Research Assistant in the Laboratory of Social Relations, Harvard University. I am indebted to Robert F. Bales who kindly allowed time for the study and offered useful suggestions concerning it. I wish also to thank Harry Hoijer, Clyde Kluckhohn, Hope Leichter, Thomas M. Marill, Jean B. Matter, and Elisabeth J. Tooker for many helpful criticisms.

[1] An unpublished MS. by the author.

[2] George Peter Murdock, Social Structure, p. 194 (New York, 1949). Subsequent data on social organization in this paper are also from this volume.

verb-noun enhancement continuum. This is not an attempt to choose matched pairs within a stock as a test but rather still on the gross level of inquiry.

2.1 Iroquois is a classic case of a verb-based language. Of it Sapir wrote, "No more thorough-going instance of a noun-incorporating language can be required than Iroquois."[3] That is, what typifies Iroquois is that the noun is frequently drawn into the verb complex. To give an estimate of the nature of the verb structure, we take the following from Lounsbury's detailed analysis of Oneida verb morphology.

The verb structure of Oneida is divided into four parts: PRE-PRONOMINAL PREFIXES, including morphemes and morpheme partials for the partitive, coincident, contrastive, negative auxiliary, translocative, aorist, dualic, future, indefinite, iterative, and cislocative; PRONOMINAL PREFIXES; VERB BASE, including in order of position: the reflexive (semi-reflexive, reflexive, intensifier), noun position (noun roots, empty morphs, derived noun stems), verb position (verb roots, complex verb stems), case positions, purposive position; INFLECTIONAL SUFFIXES, including three aspects, the serial, punctual, and perfective, these divided into six major conjugation classes.[4]

We expect that with such a markedly verb-based language, the Iroquois will be matri-centered and this is indeed the case; they are solidly matrilineal, matrilocal, both for the Northern Iroquois (Mohawk, Oneida, Onondaga, Cayuga, and Seneca) and for the Cherokee.

2.2 Looking for the extreme opposite of Iroquois to be found in America, the languages of California appear the most likely candidates. The following remarks are from Dixon and Kroeber.

> The incorporation into the verb of the pronoun, and at times even of the noun, has generally been regarded as the most characteristic and fundamental feature of American languages. The fact, however, that many Californian languages differ from the great bulk of the languages of the continent in that they lack incorporation, makes the question of its presence or absence a consideration of prime importance.
>
> Syntactical cases—that is, subjective, objective, and possessive—are not in general found in American languages, and on this account their frequent presence in California is of considerable importance.[5]

Later, these authors modified this view somewhat.

> In view of the fact that four of the five languages under consideration have previously been described as pronominally non-incorporative, it may surprise when the authors now state their belief that the Penutian verb was originally provided with personal endings. Miwok has not only a full but a variegated array of pronominal verb-suffixes; and in Costanoan, Wintun, and Maidu some fragments survive. . . . But the variety of the few suffixes in Costanoan, Wintun, and Maidu, and their lack of obvious relation to the independent pronouns in those languages, give them the appearance of remnants of a once larger array of forms, rather than the character of rudimentary beginnings of a conjugation evolving from stems through enclitics to suffixes; and this makes it almost certain that at least part of the Miwok pronominal suffix formation is old.[6]

But it is clear that the authors are speaking in the past tense with regard to incorporation in Penutian. Noun case is particularly well developed, having the objective, possessive, instrumental, locative, ablative, terminative, and comitative.[7] With this case development and the freeing of the elements from the verb we should expect some indication of patri-centeredness in California. The fact that California is outstandingly the largest cohesive patrilineal, patrilocal belt in North America, having a

[3] Edward Sapir, The Problem of Noun Incorporation in American Languages, AA 13.275 (1911).

[4] Floyd G. Lounsbury, Oneida Verb Morphology, Yale University Publications in Anthropology 48 (1953).

[5] Roland B. Dixon and Alfred L. Kroeber, The Native Languages of California, AA 5.3 (1903).

[6] Dixon and Kroeber, Linguistic Families of California, UCPAAE 16.92-4 (1919).

[7] Ibid., p. 96.

development of patri-clans and moieties,[8] is in line with the prediction of the hypothesis.

3. With Hopi, Tübatulabal and Luiseño we have the opportunity for a fine comparison since each represents a different branch of the Shoshonean language, and there is good contrasting social structure; Hopi being matrilineal, matrilocal, Tübatulabal, bilateral, patrilocal, and Luiseño, patrilineal, patrilocal. The expectation is that the matri-centered Hopi will show high verb enhancement/low noun enhancement and that the patri-centered Tübatulabal and Luiseño (relative to Hopi) will show low verb enhancement/high noun enhancement.

We begin with a statement by Kroeber concerning the patrilineal Luiseño.

> I have been working over a Luiseño grammar and dictionary in the last couple of years. Luiseño, of course, is an Uto-Aztecan language—not too close to Hopi, not too different from it. I was interested in seeing whether I could discover any parallels to, especially, the kind of verb classes Whorf reports in Hopi. I could not, and I have come to the conclusion that, on the whole, the semantic range of most stems is fairly close to what you would get among non-literary people in most European languages.[9]

This is in line with the hypothesis. We should not expect the patri-centered Luiseño to show the verb enhancement of Hopi. Unfortunately, until more is published on Luiseño grammar this is the best indication from this particular society.

Turning to Tübatulabal, which offers more available information, we present first the verb and noun classes for both Hopi and Tübatulabal, as given by Whorf and Voegelin respectively.

Hopi verb classes. Resolutions: transitive and intransitive; voices: simple, eventive, dynamic eventive, extended dynamic, cessative, essive, possessive, causative; aspects: prime, durative, segmentative, ingressive, progressional, projective, spatial, continuative; numbers: inner plural; assertions: reportive, expective, nomic; modes: independent, transrelative, conditional, correlative, concursive, sequential, agentive; status: affirmative, negative, interrogative; injunctions: imperative, vetative, optative; modalities: indicative, quotative, concessive, indeterminate, suggestive, inhibitive, potential, necessitative, impotential.[10]

Tübatulabal verb classes. Aspect: telic, atelic and optional aspects; transitive, intransitive, impersonal; suffixes, final positions: nominalizing, subordinating, imperative, present tense, exhortative, permissive, past habituative, irrealis, adversative; suffixes, medial: causative, benefactive, suffixes of movement, distributive, pretending to, desiderative, future tense, passive, collective-intensive, similative.[11]

Hopi noun classes. Class: animate, inanimate, vegetative; case: nominative, objective; state: absolute, construct; number: singular, dual, paucal, multiple.[12]

Tübatulabal noun classes. Class: A, 1 and 2, B, 1, 2, 3, 4 and 5, C, 1 and 2; case: subject, object, genitive 1 and 2; state: absolute, relative; secondary cases: inessive, ablative, allative, instrumental; derivational nominal suffixes: plural, past tense, diminutive, kinship, augmentative, suffix expressing owner, absentative.[13]

By the sheer number of categories alone it would appear that the Hopi verb is more differentiated than the Tübatulabal verb and that just the reverse is true for the noun. But we are fortunate in having more

[8] Cf. Kroeber, Handbook of the Indians of California, BAE-B 78 (1925).

[9] Harry Hoijer (ed.), Language in Culture, MAAA 79.264 (1954).

[10] Benjamin Lee Whorf, The Hopi Language, Toreva Dialect (in Hoijer, Linguistic Structures of Native America), VFPA 6 (1946).

[11] Charles F. Voegelin, Tübatulabal Grammar, UCPAAE 34 (1935)

[12] Whorf, op. cit.

[13] Voegelin, op. cit.

to base a judgement on than categories alone. The following is from Whorf on Hopi.

> A major sentence must have a predicate (predicator and supplementary words) but need not have a subject. If no subject is expressed but is required by the meaning of the predicate, third person subject is understood; or such a subject may at option be expressed by a pronoun. But Hopi has very many verbs denoting events that are essentially complete wholes and need not be analyzed into an agent and an activity. Thus, if a flash of light is to be reported, Hopi need not manufacture a subject for it, either pronominal, as "it flashed," or nominal, as "a light flashed"; its word for "flashed" is enough. A "transitory event," meaning a momentary event that leaves no lasting trace or effect, can be named only by a major sentence (or clause) with its predicator a verb or locator. This important principle controls both syntax and derivation. There can be neither original nor derived nouns meaning "a flash," "a spark," "a wave," "a nod," "a blow," etc.; this of course excludes ambivalents too. Nor can such phenomena as shooting stars, lightning, puffs of smoke, etc., be referred to by nouns, ambivalents, or nouns merely modified by other words, as in our "shooting star." The reply to "what is that?" is not "a man running" or "a flying eagle," but "a man runs," "an eagle flies."[14]

When speaking of the eventive roots Whorf tells us:

> The temptation to think of these roots as nouns, "a break," "a slit" etc. is misleading from the Hopi standpoint. Not only are they formally distinct parts of speech from Hopi nouns; but a Hopi noun denotes a figure only, these denote a figure surrounded by a more or less hazy local ground or field. A noun predicator is copulative; its subject "is" that noun. An eventive predicator is occurrent; it declares an event. Its subject is that part of the ground or field to which something happens or has happened whereby a new or altered configuration manifests, either fugitively or with lasting effect.[15]

Whorf's rich and penetrating portrayal of the Hopi verb gives perfect confirmation to our predication. To show this we need only substitute in his statements above "male" for "noun" and "female" for "verb". Thus, "but a Hopi MALE denotes a figure only, these FEMALES denote a figure surrounded by a more or less hazy local ground or field." Is not this field the background of the solidary matri-structure? Or, also from above, "Hopi has very many WOMEN denoting events that are essentially complete wholes and need not be analyzed into agent and activity." Is not this complete whole the matrilineage, which need not and is not analyzed or broken down to include the father (agent) who must remain an outsider? It is the mother and her consanguineal kin who form this complete and ongoing whole.

As to whether there is comparable richness in the verb of the patrilocal, bilateral Tübatulabal, the following from Voegelin gives excellent evidence.

> Nouns never appear with a profusion of derivative suffixes; it is rare to find a noun with more than one derivative suffix appended. The verbal theme, on the contrary, may contain a whole string of derivative suffixes. A verb which contains several suffixes is something of a problem to translate. It is as though the proposition as stated by the naked verb were delimited by the first suffix, somewhat revised by the second suffix, made passive by the third suffix, further delimited and contradicted by the fourth suffix, and so on. Such constructions are described as "high language" characteristic of old-time speech-making in which the desideratum was eloquence rather than transparent intelligibility. In contrast, the use of an auxiliary verb followed by a naked verbal stem is characterized as "strong talk."[16]

These are facts of some importance. The complex verb is characteristic of old time speech making while the use of an auxiliary verb plus naked stem is strong talk. We suggest that strong talk is men's talk in a growing patri-centered culture. It is understandable that the verb complex should break down as the patri-centeredness takes over and women no longer form a solidary unit. In other words, we would expect a freeing of auxiliary verbs from the verb

[14] Whorf, op. cit., p. 164.

[15] Ibid., 173–4.

[16] Voegelin, op. cit., p. 88.

complex in a society going over to patri-influences. We have also seen above that a similar phenomenon seems to have occurred in the Penutian language. As to what is happening to the nouns in Tübatulabal, the following quotation informs us.

> The formation of nouns gives a superficial appearance of being complex, but this is only because nouns fall into classes comparable to the well-known "declensions" in Greek and Latin. The forms used to express the obligatory nominal categories depend on the class of noun used. Actually, there are only three main noun classes. The Noun Morphology would be extremely simple if it were not for the fact that verbal stems are nominalized with extraordinary frequency. The resulting noun, no less than a noun with nominal stem, must express a syntactic case (subject, object, or genitive), and be either an absolute noun (with nonspecification of possessor) or a relative noun (with possessor specified). The case distinctions and the absolutive-relative specifications are the obligatory nominal categories.[17]

Admittedly, Voegelin tells us that the noun is not really complex except for the fact that verbs are being nominalized with extraordinary frequency. He says this not once, but twice, for on the previous page we read, "Nothing is more common in Tübatulabal than the nominalization of verb stems"[18] while, "Only a limited number of nominal stems may be verbalized."[19]

What is the interpretation for this frequent nominalization of verb stems? We saw no indication of it in Hopi. Our interpretation is this: If we substitute according to our hypothesis patri for noun then we can read the statement by Voegelin as "Nothing is more common in Tübatulabal than the *patri*-ization of women." Translating Voegelin's statement for nominal stems, we obtain "Only a limited number of men may be *matri*-ized." Contrasting these substitutions with those for the Hopi material we must admit a difference between Hopi and Tübatulabal.

The Whorfian theories, concerning the preoccupation of the Hopi with "eventing", constituted a major portion of the discussion at a recent linguistic conference,[20] with validation of Whorf's interpretations a central problem. Among the many suggestions offered as a test was the following by Voegelin.

> Let Hopi speakers, for example, be presented with carefully drawn diagrams suggestive of movement and other similar concepts in physics and asked to describe these in Hopi. Would their responses follow the fashions of speaking Whorf has suggested? Or would the Hopi find other linguistic resources not predicted by Whorf?[21]

Now, it is proposed that we have offered here the kind of test which Voegelin suggests. That is to say, we can account for the verb structure in terms of the Hopi matri-structure. This is not to say, by the way, that the rich verb structure does not help to maintain the matri-structure; they are probably mutually supportive; i.e., the Hopi verb is rich and fertile because the Hopi matri-structure is rich and fertile, and vice versa.

In sum, our hypothesis and Whorf's metaphysic make sense when taken together as mutual aspects of the same phenomenon—the RICH HOPI MATRI-VERB STRUCTURE.

4. Chewa and Zulu offer an excellent example for comparison. Both are Bantu speakers: the Chewa are matrilineal, matrilocal; the Zulu are patrilineal, patrilocal. The expectation is that the Zulu will show noun enhancement/verb decrement as compared to the Chewa.

The distinguishing features of Bantu are the development of a large number of noun classes (as high as 23 in some languages) and the principle of alliterative concord. This latter principle means that all words in the utterance connected with the noun subject receive a prefix in keeping with the

[17] Ibid., p. 93.
[18] Ibid., p. 92.
[19] Ibid.
[20] Conference on the Interrelations of Language and Other Aspects of Culture.
[21] In Hoijer (ed.), Language in Culture, p. 266.

noun.[22] In other words, the noun lines up and puts its mark on elements related to it. The following example from Zulu will make this clear.

izinkomo . . . zikababa . . . zonke . . . zaluka . . . kuleyo-ntaba . . . ende [cattle . . . they of my father . . . they all . . . they graze . . . on that hill . . . it high].[23]

We should interpret such a phenomenon as meaning that the subject noun is the father and that what the prefixes say, in effect, is that the other words belong to and are descended from the father who puts his mark upon them. Thinking of the alliterative concord in this way, and thinking of the parts of the sentence as family members,[24] the following statement by Watkins concerning Chichewa linguistic structure reads like a statement about kinship structure.

> [Concord] is a method of syntax, a technique of mooring the basic concepts of a sentence to each other by a formal expression of their relationship (relational concepts) within the sentence. The system of concordances serves as a formal bond of relationship between the elements of the ensemble, leaving no doubt as regards the relational pattern. . . .[25]

For the Southern Bantu, e.g., Zulu, where there is patrilineal descent and patrilocal residence (so marked that in one umzi, or village, as many as forty male consanguineal kin may be residing together),[26] the prefixes should and do play an important part in the sentence. But for the belt of matrilineal Bantu speakers, of which the Chewa are part, there should not be a lining up of the elements by the noun prefix, because it is the women and not the men through whom people are related. Thus, the following statement by Watkins is particularly to the point.

> The frequent lack of noun prefixes in Chichewa must be well remembered when speaking of noun systems, for, contrary to the usual manner of considering Bantu nouns, we cannot regard the prefix, nor its absence, as the sole or primary determinant of a noun class. It is rather the whole system of concordances, which, as we have said, may or may not include such affixes, that must be taken as the fundamental basis of classification.[27]

And further,

> It is quite obvious that we cannot say that the prefix determines the concord, or the class, in the case of those nouns which have no prefixes. . . .[28]

Watkins refers to the fact that of the ten noun classes in Chichewa, the prefixes are missing for Class 3 singular, Class 4 singular, and Class 5 singular and plural. And while these noun prefixes are missing, the verb subject and object concords, as he shows[29] are complete. His example for Class 5 will make this clear.

Concordial System

	Verbal		Qualificative	
Prefix	Subj. Verb	Obj. Verb	1	2
Sg. none	*i-*	*-(y)i-*	*ya-*	*ya(y)i-* (*yɛi*)
Pl. none	*zi-*	*-zi-*	*za-*	*zazi-*

[22] Clement M. Doke, Language (in I. Schapera (ed.), The Bantu-Speaking Tribes of South Africa), p. 310 (London, 1937).

[23] Ibid. (For convenience in printing, this format has been used instead of the interlinear translation of the original.)

[24] The idea of the parts of speech as family members occurs in the following quotation from Sarah Louise Arnold and George Lyman Kittredge, The Mother Tongue, Book I, p. 217 (Boston, 1900).

> A family follows certain customs of its own, and is governed by certain rules. Our language, too, obeys definite rules, and follows certain customs, which change in the course of time, just as family customs change.
>
> Our language is like a family. The words are the members, every one of which has a definite work to do. Each word does its work, just as each player takes his part in a game and each child performs his duties in the household.

[25] Mark Hanna Watkins, A Grammar of Chichewa, Language Dissertations, no. 24, p. 22 (1937).

[26] A. Winifred Hoernle, Social Organization (in I. Schapera (ed.), The Bantu-Speaking Tribes of South Africa), p. 75 (London, 1937).

[27] Watkins, op. cit., p. 22–23.

[28] Ibid., p. 23.

[29] Ibid., p. 24.

Nouns belonging to this class have no prefixes; nevertheless, the class is fully characterized by the concordial forms. Most of these nouns begin with 'nasal attack' consonants, prepalatal *n*, and post-palatal *n*. . . .[30]

The prefixes for nouns of this class may be found in cognate words of related languages. This can be readily seen in the following comparison with Zulu:

Isizulu		Chichewa	
Singular	Plural		
imbuzi	*izimbuzi*	*ᵐbú·zi*	'goat'
imvula	*izimvula*	*ᵐvú·ra*	'rain'[31]

The following is Watkin's example of concordial agreement with nouns of Class 5:

ᵐbɛrɛrɛ . . . yɔ́·yɛrá . . . yaiβayé . . . íri·ra . . . áígwirá . . . ŋ . . . ñaru·bwɛ [sheep . . . white . . . little . . . it is crying . . . he it is catching . . . is . . . leopard] = *The little white sheep is crying; the leopard is catching it.*[32]

yɔ́yé·ra (< *yá-kúyé·ra*), qualificative concord, type one; *yáí-βá·yɛ*, qualificative concord, type two; *í-rí·ra*, subjective verbal concord; *á-í-gwí·ra*, objective verbal concord *-í-*.[33]

The presence of the full verbal concord and the attendant noun prefix decrement in Chichewa can be accounted for in this way: the verbal concord says, we think, that the bond of relationship is to the mother in Chewa, whereas just the reverse is true in Zulu with its full noun prefixes (we can be sure that these are full for Zulu, as it is to this language that Watkins refers for his contrasts to Chewa). For societies other than the Chewa which are also matrilineal, we have the following terse information. Werner in a brief remark says, "Zulu . . . has kept its prefixes better than Nyanja."[34] And Johnston states, "There is no trace left in Yaw of the preprefixes, not even in the demonstrative pronouns. . . ."[35] But these preprefixes are not the same as the prefixes and we should want more information than this. Speaking, then, only for the Chewa-Zulu material, our hypothesis receives support from the evidence.

[30] Ibid., p. 35.

[31] Ibid., p. 36.

[32] For convenience in printing, this format has been used instead of the interlinear translation of the original.

[33] Ibid., p. 37.

[34] A. Werner, The Natives of British Central Africa, p. 210 (London, 1906).

[35] Harry H. Johnston, A Comparative Study of the Bantu and Semi-Bantu Languages, 2.65 (Oxford, 1919).

SOME CHATINO RIDDLES ANALYZED

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1. Scope
2. Riddle sample
3. Glossary

1. In this paper are presented some of the riddles which form an integral part of the conversation and humor of the Chatino Indians of Oaxaca, Mexico. I have chosen to present those which are most likely to make sense in English. There are many others which make sense to the Chatinos but which are difficult to explain in English. Each riddle is presented, first with a free English translation of the riddle and its meaning, then the Chatino form, then the morphological and syntactic analysis.

In the morphology, three classes of words may be distinguished: (1) verbs, which are inflected by means of prefixes, (2) a small class of nouns which indicate possession by means of change of vowel or of tone, and (3) particles, which are uninflected. Verbs are subdivided into classes according to their prefixes. Four of these classes are mentioned in this paper.

In the syntax, five classes of words are tentatively set up according to their function. For convenience, these are given familiar labels, but could as easily be called classes 1 to 5 or any other label. (1) Verbs occur as the head word of most constructions. (2) Nouns occur in subject, object and modifier positions. A modifier is classed as a noun when it is known to occur as subject or object in other constructions. (3) Adjectives directly precede or follow the nouns they modify. Adjectives denoting color or enumeration normally precede the noun, others follow. (4) Prepositions directly precede nouns but seem to sustain a somewhat different relation to the noun than that of a preposed adjective. (5) Adverbs occur in variable positions, sentence initial, sentence final, or next to verbs. Beyond syntax, a complete morphological analysis of each form is given at the first occurrence of it. Where a breakdown is possible, the component parts of compound nouns are given.

I am greatly indebted to Viola Waterhouse for the assistance she has given me in the preparation of this paper.

2. Twenty riddles follow.

1. Riddle: The fence has a bull's head. Meaning: An ax. ndsu?wa ke tòrò hāykā. ndla?āykā. ndsu?wa *it has*, nd- present tense indicator class 4 verb, -su?wa verb stem *have*, tone 3 (unmarked) on final vowel third person subject indicator. ke *his head*, tone 3 (unmarked) third person possessive indicator, noun, direct object indicated by position directly following verb. tòrò *bull* (Sp.) noun, modifier of kē. hāykā *fence* noun, subject of sentence shown by sentence final position. ndla?āykā *ax* compound noun (ndla- *hard*, -?ā- *very*, -ykā *wood*).

2. Riddle: The land crab is eating his sister. Meaning: A sugar cane press. ndšikú ta?a kwè? tiy?ǫ tuntį?. ykatukwīnyǭ?. ndšikú *he is eating*, ndši- present tense indicator class 3 verb, -kú verb stem *eat*, tone 1 (′) on final vowel third person subject indicator. ta?a *his sister*, tone 3 (unmarked) on final vowel third person possessive indicator, noun, direct object. kwè? *crab* noun, subject of sentence. tiy?ǫ *bone* noun, modifier of kwè?. tuntį? *plains* compound noun (tu- meaning uncertain, -ntį? *plains*), modifier of kwè? tiy?ǫ. ykatukwīnyǭ? *sugar cane press* compound noun (yka- *wood*, -tu- meaning uncertain, -kwīnyǭ? *honey*).

3. Riddle: It is a setting hen on a hillside. Meaning: A thatch-roofed house. ndi?į kwitú šu? lō ká. nǫ?ǫkwǭ kwisų. ndi?į *it is*, n- present tense indicator[1] class 1 verb, -ti?į[2] verb stem *be*, tone 3 (unmarked) on final vowel third person subject indicator. kwitú *hen* noun, direct object. šu? *setting* adjective, modifier of kwitú. lō *on* preposition. ká *hillside* noun, object of preposition. nǫ?ǫkwǫ *roof* compound noun (nǫ?ǫ- *house*, -kwǫ *above*). kwisų *thatch* noun, modifier of nǫ?ǫkwǫ.

4. Riddle: It is a piece of soap inside a gourd bowl. Meaning: The moon. ndi?į kwiyá? yu?we ni? ská?. kō?. ndi? į *it is*, class 1 verb (see riddle 3 for analysis). kwiyá? *soap* noun, direct object. yu?we *piece* adjective, modifier of kwiyá?. ni? *inside* preposition. ská? *gourd bowl* noun, object of preposition. kō? *moon* noun.

5. Riddle: There is a chili pepper seed in the water. Meaning: A star. ndukwí ngùtà kìnyǫ̀? lo ti?ā. kwíí. ndukwí *there is* particle serving as syntactic verb. ngùtà *seed* noun, direct object. kìnyǫ̀? *chili pepper* noun, modifier of ngùtà. lo *in* preposition. ti?ā *water* noun, object of preposition. kwíí *star* noun.

6. Riddle: Every day and every night the old man, who stands in the ravine, is calling. Meaning: A river. ngwa tsǭ ngwa tlà nsi?yā ni ndū ni hàyú. tšukú. ngwa *every* adjective, modifier of tsǭ. tsǭ *day* noun. ngwa *every* adjective, modifier of tlà. tlà *night* noun. nsi?yā *he is calling*, n- present tense indicator class 2 verb, -si?yā verb stem *call*, tone 2 (¯) on final vowel third person subject indicator. ni *old one* noun, subject of nsi?yā. ndū *he is standing*, n- present tense indicator class 2 verb, -du verb stem *stand*, tone 2 (¯) on final vowel third person subject indicator. ni *old one* noun, subject of ndū. hàyú *ravine* noun, modifier, locational. tšukú *river* noun.

7. Riddle: The valley has a button. Meaning: Fog. ndsu?wi kwiyukilánkà? tutākā?. kōō. ndsu?wi *it has*, nd- present tense indicator class 4 verb, -sū?wī verb stem *have*, tone 3 (unmarked) on final vowel third person indicator. kwiyukilánkà? *button* compound noun, direct object. tutākā? *valley* noun, subject of sentence, kōō *fog* noun.

8. Riddle: It has a fence of plum trees. Meaning: The eye. ndsu?wi lo?ō ykanstį. kilo. ndsu?wi *it has* class 4 verb (see riddle 7 for analysis). lo?ō *around* noun, direct object. ykanstį *plum tree* compound noun (yka- *wood*, -nstį *plum*), modifier of lo?ō. kilo *his eye*, tone 3 (unmarked) on final vowel third person possessive indicator, noun.

9. Riddle: The cave has a pig in it. Meaning: The tongue. ndsu?wi kuwē? tukē. se?. ndsu?wi *it has* class 4 verb (see riddle 7 for analysis). kuwē? *pig* noun, direct object. tukē *cave* noun, subject of sentence. se? *his tongue*, tone 3 (unmarked) third person possessive indicator, noun.

10. Riddle: It is white above and white below and in the middle there is water. Meaning: A coconut. ngatę kwǫ̀, ngatę lyú, hl?wè la ndi?į ti?ā. ngwi?yatnų. ngatę *white* noun, modifier of kwǫ̀. kwǫ̀ *above* noun. ngatę *white* noun, modifier of lyú. lyú *below* noun. hl?wè *in the middle* noun, modifier, locational. la *more* adverb. ndi?į *it is* (see riddle 3 for analysis). ti?ā *water* noun, direct object. ngwi?yatnų *coconut* compound noun (ngwi?ya- *the oily nut of a certain tropical palm*, -tnų *big*).

11. Riddle: It is white above and white below and in the middle it is yellow. Meaning: An egg. ngatę kwǫ̀, ngatę lyú, hl?we la ndi?į kwitsi. skuwe. ngatę------ndi?į (see riddle 10 for analysis). kwitsi *yellow* noun, direct object. skuwe *egg* noun.

12. Riddle: The old one's hip bone has fatherless babies. Meaning: A cornfield that has young ears of corn. ndukwa kuwi?

[1] The present indicator of class 1 verbs has the following alternates: ndu- before -h-, nd- before -l-, ngi- before -?-, n- in all other occurrences.

[2] There is a morphophonemic change from t to d when preceded by n in class 1 verb stems with t initial.

ndukú? si? ni. kila, ndukwa ndǫ?ǫ. ndukwa *it has* (*it is*) particle serving as syntactic verb. kuwi? *baby* noun, direct object. ndukú? *fatherless* adjective, modifier of kuwi?. si? *hipbone*, tone 3 (unmarked) third person possessive indicator, noun, subject of sentence. ni *old one* noun, possessive, modifier of si?. kila *cornfield* noun. ndukwa *it has* particle serving as syntactic verb. ndǫ?ǫ *tender ears of corn* noun, direct object.

13. Riddle: They walk and run over the button. Meaning: Lice. ndǫ?ǭ nsnǭ kwiyukilānkà?. kwitį?yi?a. ndǫ?ǭ *they* (*it*) *walk* n- present tense indicator class 2 verb, -dǫ?ǭ verb stem *walk*, tone 2 (¯) on final vowel third person subject indicator. nsnǭ *they* (*it*) *run* n- present tense indicator class 2 verb, -snǭ verb stem *run*, tone 2 (¯) on final vowel third person subject indicator. kwiyukilānkà? *button* noun, modifier, locational. kwitį?yi?a *lice* noun.

14. Riddle: A scampering and a squeaking here and a scampering and a squeaking there. Meaning: A rat. nta? ne kwā nta? ne nde. tnyǭ?. nta? *scampering* noun. ne *squeaking* noun. kwā *there* adverb. nde *here* adverb. tnyǭ? *rat* noun.

15. Riddle: Someone is playing with a sword on the plain. Meaning: A sugar cane leaf. ndihyā spàdà ntį?. lka? lhiyá. ndihyā *he is playing* n- present tense indicator class 2 verb, -dihyā verb stem *play*, tone 2 (¯) on final vowel third person subject indicator. spàdà *sword* (Sp.) noun, direct object. ntį? *plains* noun, modifier, locational. lka? *leaf* noun. lhiyá *sugar cane* adjective, modifier of lka?.

16. Riddle: It is half of a little hat. Meaning: A kind of mushroom. ndukwa meria mslū tšakú?. kwiya? kwíí. ndukwa *it is* (*it has*) particle serving as syntactic verb. meria *one half* (Sp.) noun, direct object. mslū *hat* noun, possessive modifier of meria. tšakú? *little* adjective, modifier of mslū. kwiya? *mushroom* noun, kwíí *star* adjective, modifier of kwiya?.

17. Riddle: A braid of hair rope in the road. Meaning: A worm. lsu tī kitšǭ? tųkwį. kwitye?. lsu *braid*, tone 3 (unmarked) third person possessive indicator, noun. tī *rope* noun, possessive modifier of lsu. kitšǭ? *hair* noun, modifier of tī. tųkwį *road* noun, modifier, locational. kwitye? *worm* noun.

18. Riddle: The old one is wrinkling up his forehead. Meaning: Lightning. ngi?ni tšikǫ ni. nduwí. ngi?ni *he is making* ngi- present tense indicator[3] class 1 verb, -?ni verb stem *make, do* tone 3 (unmarked) on final vowel third person subject indicator. tšikǫ *his forehead*, tone 3 (unmarked) on final vowel third person possessive indicator, noun, direct object. ni *old one* noun, subject of sentence. nduwí *lightning* noun.

19. Riddle: The kneecap of the old one who stands on the hilltop has pus in it. Meaning: A pine tree. ndukwa kutse? kestyį? ni ndū ni lo ntę́. ykakitye. ndukwa *it has* (*it is*) particle serving as syntactic verb. kutse? *pus* noun, direct object. kestyį? *kneecap* compound noun (ke *head* styį? *knee*), subject of sentence. ni *old one* noun, possessive modifier of kestyi?. ndū *he is standing*, class 2 verb (see riddle 6 for analysis). ni *old one* noun, subject of verb ndū. lo *on* preposition. ntę *hilltop* noun object of preposition. ykakitye *pine tree* compound noun (yka *wood*, kitye *pine*).

20. Riddle: Once the old man's child is born, the old man dies. Meaning: Banana plant. si?ā ti ndši?į snyę? ni ndihį̄ ni. ykahu?wa. si?ā *one time* adverb. ti *only* adverb. ndši?į *he is born* nd- present tense indicator class 4 verb, -ši?į verb stem *born*, tone 3 (unmarked) on final vowel third person subject indicator. snyę? *son* noun, subject of ndši?į. ni *old one* noun, possessive modifier of snyę?. ndihį̄ *it passes* n- present tense indicator class 2 verb, -dihį̄ verb stem *pass*, tone 2 (¯) on final vowel third person subject indicator. ni *old one* noun, subject of sentence. ykahu?wa *banana*

[3] See footnote number 1.

plant compound noun (yka- *wood*, -hu?wa *banana*).

3. Glossary; the numbers refer to the riddles listed above (**2**).

hāykā *fence* 1; hàyú *ravine* 6; hl?wè *half* 10.

ka *hillside* 3; kē *head* 1; kestyį? *kneecap* 19; kila *cornfield* 12; kilo *eye* 8; kinyǫ̀? *chili pepper* 5; kitšǭ? *hair* 17; kō? *moon* 4; kōō *fog* 7; kutse? *pus* 19; kuwē? *pig* 9; kuwi? *baby* 12; kwā *there* 14; kwè? *crab* 2; kwíí *star* 5; kwisų *thatch* 3; kwitį?yi?a *lice* 13; kwitsi *yellow* 11; kwitú *hen* 3; kwitye? *worm* 17; kwiya? *mushroom* 16; kwiyá? *soap* 4; kwiyukilánkà? *button* 7, 13; kwǫ *above* 10, 11.

la *more* 10, 11; lhiyá *sugar cane* 15; lka? *leaf* 15; lō, lo *on, in* 3, 5, 19; lo?ō *around* 8; lsu *braid* 17; lyú *below* 10, 11.

meria (Sp.) *one half* 16; mslū *hat* 16.

nde *here* 14; ndihį *it passes* 20; ndihyā *it is playing* 15; ndi?į *it is* 3, 4; ndla?āykā *ax* 1; ndǫ?ǫ *tender ears of corn* 12; ndǫ?ǭ *it walks* 13; ndū *he is standing* 6, 19; ndukú? *fatherless* 12; ndukwa *it has, it is* 12, 16, 19; ndukwí *there is* 5; nduwí *lightning* 18; ndsu?wa *it has* 1; ndsu?wi *it has* 7, 8, 9; ndši?į *he is born* 20; ndšikú *he is eating* 2; ne *squeaking* 14; ngatę *white* 10, 11; ngi?ni *he is making* 18; ngùtà *seed* 5; ngwa *every, all* 6; ngwi?yatnų *coconut* 10; ni *old one* 6, 12, 18, 19, 20; ni? *inside* 4; nǫ?ǫkwǫ *roof* 3; nsi?yā *he is calling* 6; nsnǭ *it runs* 13; nta? *scampering* 14; ntę *hilltop* 19; ntį? *plains* 15.

se? *tongue* 9; sī? *hipbone* 12; si?ā *one time* 20; ská? *gourd bowl* 4; skuwe *egg* 11; snyę? *son, child* 20; spàdà (Sp.) *sword* 15; šu? *setting* 3.

ta?a *sister* 2; ti *only* 20; tī *rope* 17; ti?ā *water* 5, 10; tiy?ǫ *bone* 2; tlà *night* 2; tnyǭ? *rat* 6; tòrò (Sp.) *bull* 1; tsǭ *day* 6; tšakú? *little* 16; tšikǫ *forehead* 18; tšukú *river* 6; tukē *cave* 9; tųkwį *road* 17; tuntį? *plains* 2; tutākā? *valley* 7.

ykakitye *pine tree* 19; ykanstį *plum tree* 8; ykatukwīnyō? *sugar cane press* 2; yu?we *piece* 4.

PITCH PROBLEMS IN KIOWA

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0. Introduction
1. Phonemes
2. The syllable
3. Length
4. Tones
5. Laryngealization
6. Stress
7. Distribution of tones
8. Perturbations
9. Conclusion

0.1. There are two problems of particular importance for the study of pitch in Kiowa.[1]

0.1.1. It has generally been assumed, in register-tone languages, that though the postulated pitch levels are in no way absolute and unchangeable, various manifestations of the same toneme in one short utterance, at least, will show only minor differences in terms of absolute pitch levels.[2] This is not the case in Kiowa. There is a considerable drift downward in a succession of the same tonemes, particularly of high tonemes, and there are also other marked phonetic variations of the tonemes within one utterance. These variations can be shown to be conditioned by environment (**4.3**), but they are bound to make recognition of any tonal system, and of a limited number of tonemic levels, difficult in the initial stages of the analysis. This may be the reason why earlier analyses of Kiowa have found stress, but not pitch, phonemically contrastive in Kiowa.[3]

0.1.2. The suprasegmental features of laryngealization, length, stress, and pitch are singularly interwoven in Kiowa. It is difficult to study any one of them in isolation, and to find pairs of utterances which are distinguished by one of these features only: If there is a pitch difference there is commonly also a difference in length, or stress, or in presence or absence of laryngealization, and vice versa. It is only by taking the system as a whole, and trying to predict the occurrence of one or more of them from the occurrence of one or more of the others, that one can determine which suprasegmental features are structurally pertinent, and which of them can be relegated to the subphonemic level.

It is the purpose of this paper to show that if length and pitch are considered lexically and grammatically contrastive laryngealization and stress can be predicted, or are subject to free fluctuation; a prediction from any other starting point, e.g. a prediction of laryngealization and pitch in terms of length and stress, is not possible.

0.2. Due to the limited time at my disposal, and the complexity of the problems, I relied on elicited utterances for analysis: It was considered imperative to study the various factors under controlled conditions, and I worked therefore mainly with frames and a limited number of constructions.[4]

[1] Kiowa is a language spoken in Southern Central Oklahoma. It seems to be dying out; it is mostly only the older generation which uses it now; the children do not care to learn to speak it, though they will understand it.

[2] See e.g. K. L. Pike, Tone Languages, University of Michigan Publications, Linguistics, IV. Ann Arbor: University of Michigan Press, 1948, especially pp. 27–31.

[3] See e.g. W. L. Wonderly, L. F. Gibson, and P. L. Kirk, Number in Kiowa, Nouns, Demonstratives, and Adjectives, IJAL 20.1–7 (1954).

[4] The material for this paper was collected in 1954 at the Summer Institute of Linguistics at the University of Oklahoma. Lillian Hunt, Helen Spotted Horse, and Louis Toyebo served as main informants. Data obtained from earlier publications, and from student papers, were checked with them.

Earlier publications on Kiowa include: John P. Harrington, Vocabulary of the Kiowa Language, BAE-B 84 (1929). Parker McKenzie and John P. Harrington, Popular Account of the Kiowa

0.3. The analysis was made, to start with, with a purely auditory method, partly because no instrumentation was available. Later, the recordings of a great part of the material have been studied instrumentally.[5] The purpose of the instrumental study was, not to make a phonemic analysis, but to ascertain which physical features were consistently associated with structural contrasts.

Laryngealization was studied by means of spectrograms, made with wide filter. The main effort, however, was directed against a study of stress and pitch. Stress was arbitrarily defined as intensity, or rather acoustical pressure as measurable by a Brush ink writing oscillograph, Type OBA. The pressure traces obtained in this way were checked against pictures on the screen of a cathode-ray oscillograph. The two instruments gave, in general, very similar pictures. It may be questioned whether this is the most useful way of measuring stress, and whether the readings obtained in this way are meaningful in terms of what we perceive and respond to. It is the opinion of the present writer that such an analysis is better, at least, than using the subjective perception of the linguist, with his particular linguistic background and prejudices, as a criterion. Structural contrasts will have to be established by normal linguistic methods, and the ear has to do the groundwork in deciding what constitutes the contrasts, but instrumentation may be an important help in determining the physical correlates of the structural contrasts.

Pitch was measured in terms of the frequency of vibration of the vocal folds. There is no simple linear relationship between pitch (i.e. perception) and frequency of vibration (i.e. physical stimulus), but the discrepancy is small enough for us to disregard it for the purposes of this paper. What in the following will be referred to as pitch traces, were obtained by making 4″, 3500 cps. wide spectrograms with a narrow filter, and reading the fundamental frequency, by means of a special scale, off the 10th harmonic trace.

1. A possible phonemic analysis of Kiowa gives the following phonemes:

Vowels: /i e a ɔ o u/.

Consonants: Voiceless unaspirated stops: /p t k/; voiceless aspirated stops: /pʰ tʰ kʰ/; glottalized stops: /p' t' k'/; voiced stops: /b d g/; voiceless affricates, nonglottalized and glottalized respectively: /c c'/; voiceless fricatives: /s h/; voiced fricative: /z/; nasals: /m n/; lateral: /l/; non-syllabic vocoid: /y/.

Suprasegmental phonemes: Nasalization in vowels: /˛/, as in /į ę ą ǫ ǫ ų/; length in vowels: /·/, as in /i· e· a· ɔ· o· u·/; tones: high /ˊ/ and low /ˋ/.

2. The distribution of phonemes can best be described in relation to the syllable. The syllable is either long or short. A short syllable is comprised of any syllable ending in /V/. A long syllable is comprised of any syllable ending in /V·/ or /VC/. Each syllable contains one and only one vowel. Only /p t m n l y/ occur as syllable-final consonants, whereas any consonant may occur syllable-initially. There are no other consonant clusters within the syllable than /Cy/, which may occur syllable-initially. Only short vowels are followed by consonants in the same syllable.

On the basis of the above criteria the

Language, University of New Mexico Press, 1948. Edith E. Crowell, A Preliminary Report on Kiowa Structure, IJAL 15.163–167 (1949). William L. Wonderly, Lorna Gibson, and Paul L. Kirk, Number in Kiowa, IJAL 20.1–7 (1954).

[5] This instrumental study was carried out in the Speech Research Laboratory of the University of Michigan in the autumn of 1954.

I wish to express my gratitude to my colleagues at the Summer Institute of Linguistics for their valuable advice and suggestions, and to the Speech Research Laboratory and its staff for the facilities and help given in the instrumental analysis.

syllable boundary can be predicted in the following cases:

/-V(·)V(·)-/: between the vowels: /hǫ́ǫ̀n/ *road*. /-CC_1-/:[6] between the consonants: /pʰátkyá/ *goods*. /-V·CV(·)-/: before the consonant: /kú·tò/ *bird*. /-VCV(·)-/, when C is any of the following consonants, /k pʰ tʰ kʰ p' t' k' b d g c c' s h z/:[7] before the consonant: /cégùn/ *dog*. When C is any of the following consonants, /p t m n l y/, the syllable boundary is before the consonant when the following vowel is long: /tʰàlí·/ *boy*. This is also the case when the following vowel is short, but in this case the consonant may be phonetically ambi-syllabic. Instances have been observed only across morpheme boundaries. When a morpheme boundary so occurs after C the syllable boundary fluctuates somewhat: The consonant belongs to the preceding or the following syllable according to the rate of speech. In slow, careful enunciation morpheme-final, followed by a rhythmic break: /kútà·/ *pencils*, from /kút/ *writing* and /á·/ *sticks*; /k'óp èdɔ́/[8] *it is a mountain*, from /k'óp/ *mountain* and /èdɔ́/ *it is*. In normal, conversational style the consonant is commonly syllable-initial in these cases. If it is desired to show these potential rhythmic breaks, with medial syllable-final consonants, in slow speech, morpheme boundaries will have to be marked in a phonemic writing in the sequence /-VCV-/. They are disregarded for the purposes of this paper, as they do not affect the phonemic structure as described here.

[6] C_1 is any consonant other than /y/.

[7] i.e. any consonant other than /p t m n l y/.

[8] Here, as in the following, attempts have been made at marking word boundaries by spaces. However, these boundaries may have to be modified when the morphemic and syntactical analysis of Kiowa is more complete than at present. The word boundaries are marked in order to facilitate reading, not because they are necessary from a phonemic point of view.

3. Length is contrastive in the vowels. Minimal contrast occurs in phrases:[9] /t'áp à·ǫ́/ *they gave me a deer*, /t'áp àǫ́/ *you gave them a deer*. Contrast in analogous environment can be seen in several word pairs and triplets: /àhó·/ *kill him!*, /à·hô·/ *thank you!*; /tʰàlí·/ *boy*, /tʰà·lî·/ *paternal grandmother* (vocative); /kú·tò/ *bird*, /kútà·/ *pencils*; /mɔ́sɔ́/ *six*, /mą̀·sɔ́·/ *crow*, /mą̀hį́·/ *screech owl*, cf., also /mą̀p'âl/ *trash*, /mą̀·k'ɔ̂n/ *nose*, /mǫ́·dɔ́/ *hand, arm*, /mǫ́·dɔ̀/ *it is not too bad*; /tò·hį̂·/ *mocassin*, /tòdôm/ *floor*; /hóldà ɔ́ndɔ́/ *she wants a dress*, /kútà· ɔ́ndɔ́/ *she wants pencils*.

Compare also the first vowel in the following words, after a voiceless velar plosive consonant, with various combinations of tone: /kɔ́bót/ *boat*, /k'ɔ̀dál/ *waggon*, /k'ɔ̀âl/ *dishes*; /kɔ̀·kôy/ *mother*, /kʰɔ́·t'ą̀y/ *bumble bee*, /k'ɔ́·gɔ́·/ *bank* (e.g. of a river), /k'ǫ́·dè/ *no good*.[10]

Phonetically, a nasalized vowel is slightly longer than an oral vowel, whether it is phonemically long or short. A phonetically half-long, but phonemically short nasalized vowel is still in contrast with a phonemically long nasalized vowel.[11] A long vowel before a pause is phonetically half-long only: The second vowel in /kútà·/ *pencils* is shorter when the word is said in isolation than in the phrase /kútà· gyàdɔ́/ *they are pencils*. But the final long vowel contrasts with a phonemically short vowel in the same position.[11] A syllable-final voiced consonant is phonetically long before another consonant, but

[9] In the limited body of data collected for this paper these contrasts occur only in pairs of phrases one member of which contains a syllable of tone perturbation.

[10] It is not possible to find four words of identical segmental and suprasegmental phonemes to illustrate the contrast between /CVCV/, /CV·CV/, /CVCV·/, and /CV·CV·/. But in addition to the contrast between /CV·CV/, /kú·tò/ *bird*, and /CVCV·/, /kútà·/ *pencils*, cf. also /((C)C)V·CV·/: /k'yą́·hì·/ *man*, /ɔ́·pí·/ *fish*, /pí·cǫ́·/ *fork*; /CVCV́/: /mɔ́sɔ́/ *six*.

[11] Evidence for this contrast has been presented earlier in this paragraph.

there is no phonemic length contrast in the consonants:[12] /gómgyá/ [góm·gyá] *wind*, /mónc'ǫ́·/ [món·c'ǫ́·] *finger nail*, /kólzèp/ [kól·zèp] *milk*, /yáypó/ [yáy·pó] *rope*; /cégùn/ [cégùn] *dog*, but /cégùn dɔ́/ [cégùn·dɔ́] *it is a dog*; /ɔ̀nt^{h}ál/ [ɔ̀n·t^{h}ál] *toe*, but /ɔ̀nt^{h}ál dɔ́/ [ɔ̀n·t^{h}ál· dɔ́] *it is a toe*; /ɔ̀nsôy/ [ɔ̀n·sôy] *foot*, but /ɔ̀nsôy dɔ̀/ [ɔ̀n·sôy· dɔ̀] *it is a foot*.

There is no length contrast in the vowels in closed syllables (cf. **2**). On the basis of phonetic similarity the vowel of closed syllables is assigned to the short phonemic category: /kólzèp/ *milk*, /kûy/ *cayote*, /mónt^{h}èm/ *elbow*, /p^{h}átkyá/ *goods*. Nor is there any length contrast in vowels of syllables carrying a combination of tones. The vowel of such a syllable is considered phonemically long on the basis of phonetic similarity, and because when the syllable is perturbed from /ˆ/ to /ˋ/ the vowel is contrastively long: /óydè hę̀·gyà/ *those toys*, cf. /óydè hè·gyà/ *his toys*; /àdę̀·hèm/ *I slept*, cf. /ádę̀·hèm/ *they slept*.

Long vowels contrast with disyllabic sequences of same vowels. /V·/ contrasts with /V_1V_1/ (cf. **5**): /kútà· ɔ́ndɔ́/ *he wants pencils*, /hóldà àɔ́ndɔ́/ *I want a dress*; /dɔ́·mɔ̀/ *here*, /dɔ́ɔ́ndɔ́/ *they want me to do it*; /p'ɔ́·dɔ̀/ *rivers*, /p'ɔ́·ɔ́y/ *many rivers*.

/V_1V_1/ parallels sequences of unlike vowels, /V_1V_2/: /dɔ́ɔ́ndɔ́/ *they want me to do it*, cf., /áɔ́ndɔ́/ *they want it*; /hóldà àɔ́ndɔ́/ *I want a dress*, cf. /kú·tò àɔ́ndɔ́/ *I want a bird*; /ɔ́nt'ɔ̀ ɔ́lhǫ́·gyà ą́ǫ́/ *he gave her five dollar*, cf., /p^{h}ą́·ò ɔ́lhǫ́·gyà ą́ǫ́/ *he gave her three dollar*; /ʃdáàl tâl ą́ǫ́/ *you must give the skunk to him*, cf., /áɔ̀ncàą́/ *they are walking*.

Among sequences of same vowels there is a contrast between /V_1V_1/, /V_1·V_1/, /V_1V_1·/ and /V_1·V_1·/: /V_1V_1/ vs. /V_1·V_1·/: /dɔ́ɔ́ndɔ́/ *they want me to do it*, /énɔ̨̀·ɔ̨̀·mè/ *they* (dual) *made it* (inverse of noun classes I and II[13]) *for me*; /dáàl tâl ą́ǫ́/ *you must give him the skunk*, /cá· â·ǫ́/ *they gave me a prairie dog*. Cf. /V_1V_2/ vs. /V_1·V_2·/: /hǫ́ɔ̀n/ *road*, /nǫ́·à·/ *my trees*.

/V_1V_1/ vs. /V_1·V_1/: /dɔ́ɔ́ndɔ́/ *they want me to do it*, /p'ɔ́·ɔ́y/ *many rivers*, /dɔ̂·ɔ̀lp'ǫ́ǫ́/ *they washed one item for me*; /hóldà àɔ́ndɔ́/ *I want a dress*, /kútà· àɔ́ndɔ́/ *I want pencils*. Cf., /V_1V_2/ vs. /V_1·V_2·/: /hǫ́ɔ̀n/ *road*, /tą́· èl/ *big star*; /áɔ̀ncàą́/ *they are walking*, /á· èttɔ̀/ *big stick*.

/V_1V_1/ vs. /V_1V_1·/: /hóldà ánèt/ *her dress is big*, /gyàá·lyá/ *I am chasing it*. Cf., /V_1V_2/ vs. /V_1V_2·/: /k'ɔ́·gɔ̀ èdɔ́/ *they are knives*, /t'ǫ́·dèl· dɔ́/ *it is a mouse*; /hácò ànátǫ́·gyá,/ *how do you say -*, /p^{h}ǐ·bǫ́á·dɔ̀/ *lamp*.

/V_1·V_1/ vs. /V_1V_1·/: /tę̂· ę́dɔ̀/ *it is my uncle*, /ę̀ę́·bá/ *they* (dual) *hunted*. Cf., /V_1·V_2/ vs. /V_1V_2·/: /tą́· èl/ *big star*, /p^{h}ǐ·bǫ́á·dɔ̀/ *lamp*.

4.1. It is convenient to postulate two tones or tonemes for Kiowa, high /ˊ/ and low /ˋ/. The unit of tone placement is the syllable, which may have either of these tones: /ˊ/, /ˋ/, and /ˆ/, the last one being a combination of /ˊ/ and /ˋ/. Monosyllabic /ˋ/+/ˊ/ has not been found.[14]

4.2. Tone contrast is manifested in the following minimal pairs: /ˊ/ vs. /ˋ/: /t^{h}á·dé/ *matches*, /t^{h}á·dè/ *he is married*; /t^{h}ǫ́·gúl/ *soda pop*, /t^{h}ǫ̀·gùl/ *waggon*; /tá·t^{h}ą́/ *she got jealous*, /tá·t^{h}ą̀/ *it is shining*; /gómgyá/ *wind*, /gómgyà/ *behind*; /k^{h}ɔ́·dɔ́/ *blanket*,

[12] But there is a contrast between a single consonant and a sequence of same consonants, the latter occurring only across syllable boundary, e.g. between /t/ and /tt/: /ɔ̀nsò éttɔ̀/ *a big foot*, /é·t^{h}áttɔ̀/ *one grain of corn*, /étpɔ̀ttɔ̀/ *they are eating*, vs. /étǫ̨̀·mè/ *we made them*. In /tt/ there is no separate release of the first stop.

[13] Here and in the following, the noun classes are referred to in terms of the analysis presented by Wonderly, Gibson, and Kirk, IJAL 20.1–7 (1954).

[14] A disyllabic sequence /ˆ/ and /ˊ/ occurs, examples of which are found in **3**. [ˆ] + [ˊ] is analysed in this way for reasons of timing and syllabication, as well as for morphological reasons, and the disyllabic sequence /ᵛ/ is paralleled by other disyllabic sequences /ˇˋ/, /ˇˊ/, and /ˇˆ/: /hóldà áɔ́ndɔ́/ *they want a dress*, /hóldà àɔ́ndɔ́/ *I want a dress*; cf. also /dɔ́ɔ́ndɔ́/ *they want me to do it*, /dáàl tâl ą́ǫ́/ *you must give them the skunk*.

/kʰɔ́·dɔ̀/ *it has been bought*; /zǫ́· dɔ́/ *it is a tooth*, /zǫ́·dɔ̀/ *pine*; /mǫ́·dɔ́/ *hand, finger*, /mǫ́·dɔ̀/ *it is not too bad*; /sép dɔ́/ *it is rain*, /sépdɔ̀/ *it is raining*; /á· dɔ́/ *they are trees*, /á·dɔ̀/ *stick*; /tó·gúl dɔ́/ *it is a young man*, /tò· gúl dɔ́/ *it is a red house*; /t'ɔ́·dé dɔ́/ *it is an ear*, /t'ɔ́·dèdɔ́/ *it is running*; /pálà· dɔ́/ *they are beds*, /pálà·dɔ̀/ *bed*; /t'ó·gyá gyàdɔ́/ *there is something in front*, /t'ó·gyà gyàdɔ́/ *it is a cold spot*; /pʰí·bǫ́á· dɔ́/ *they are lamps*, /pʰí·bǫ́á·dɔ̀/ *lamp*; /(k'ɔ̂·gɔ̀) étbǫ́/ *we saw* (*knives*), /k'ɔ̂· étbǫ̀/ *we saw* (*knives*) (the two forms are apparently replaceable); /kú·tògɔ̀ étpóttɔ̀/ *they are eating birds*, /kú·tògɔ̀ étpɔ̀ttɔ́/ *the birds are eating*; /tó·gúl gyàbǫ́/ *I saw the young man*, /tò· gúl gyàbǫ́/ *I saw the red house*; /óydè cégùn dɔ́/ *that is a dog*, /óydè cègùn dɔ́/ *it is his dog*; /áɔ̀ncàą́/ *they are walking*, /àɔ̀ncàą́/ *I am walking*; /hɔ̂ndé àl ɔ́ndɔ́/ *what else does he want?*, /hɔ̂ndè àl ɔ́ndɔ́/ *he wants something else*.

/'/ vs. /ʌ/: /kʰɔ́y/ *skin*, /kʰɔ̂y/ *rags*; /k'ɔ́dál dɔ́/ *it is a waggon*, /k'ɔ́dâl dɔ́/ *it is round*; /gyàtʰál dɔ́/ *it is burnt*, /gyà tʰâl dɔ́/ *they are holes*; /àk'ɔ́·dɔ̀/ *I am cold*, /àk'ɔ̂·dɔ̀/ *I have a cut*.

/ˆ/ vs. /ʌ/: /óydè hę̀·gyà/ *his toys*, /óydè hę̂·gyà/ *those toys*.

A tonal triplet is seen in: /hɔ̂ndé ą̀/ *what did he come for?*, /hɔ́ndé ą̀/ *he came for something*, /hɔ́ndé ą́/ *somebody is coming*. Near minimal pairs are: /k'ɔ́·gɔ́/ (*river*) *bank*, /k'ɔ̂·gɔ̀/ *knives*; /tʰàlí·/ *boy*, /tʰà·lî·/ *grandmother* (vocative); /àhó·/ *kill him!*, /à·hô·/ *thank you!*; /gyágùttɔ̀/ *they are writing*, /gyâ·gùttɔ̀/ *they are writing to me*.

The verb paradigms show a number of minimal tone pairs. Some of the numerous possible tone contrasts in verb forms are given below. Contrast in the prefix: /áhó·gyá/ *you* (sing.) *bought it for him* (object: class I sing.),[13] /àhó·gyá/ *you bought it for them* (object: I sing.); /áso·dè/ *they got angry*, /àsǫ̂·dè/ *I got angry*; /étbǫ́/ *they saw it* (object: I or II, inverse), /ètbǫ́/ *they saw them* (object: dual); /gyápǫ́ǫ́/ *I showed it to you* (object: I sing.), /gyàpǫ́ǫ́/ *I showed it to them* (object: I sing.); /gyákʰǫ̂·mɔ̀/ *they are reading*, /gyàkʰǫ̂·mɔ̀/ *he is reading*; /bátǫ́·gyá/ *they said it*, /bàtǫ́·gyá/ *I said it*; /déólp'ǫ́ǫ́/ *I washed for them*, /dèólp'ǫ́ǫ́/ *I washed* (object indefinite); /émhâ·gú/ *they are getting up*, /èmhâ·gú/ *he is getting up*; /béhâ·gú/ *you* (plur.) *are getting up*, /bèhâ·gú/ *you* (sing.) *are getting up*; /ménǫ́·mé/ *you* (dual) *saw it, them* (object: dual, or inverse of I or II), /mènǫ́·mé/ *you* (sing.) *saw them* (object: dual); /bétbǫ́/ *you* (plur.) *saw it, them* (object: inverse of I or II), /bètbǫ́/ *you* (plur.) *saw them* (object: dual).

Contrast in the stem: /étpóttɔ̀/ *they are eating it, them* (object: inverse of I or II; subject; a mixed or unmixed group), /étpɔ̀ttɔ̀/ *they are eating* (implied object: plur. of a sub-class of II; subject: an unmixed group, such as birds); /éǫ́·mé/ *he made it, them* (object: inverse of I or II), /éǫ̀·mè/ *we made it, them* (object: sing. of I, or plur. of II); /énǫ́·mé/ *they* (dual) *made it, them* (object: dual, or inverse of I or II), /énǫ̀·mè/ *they* (dual) *made them* (object: plur. of a sub-class of I).

Contrast in the prefix and the stem: /gyàgúttɔ̀/ *he is writing*, /gyágùttɔ̀/ *they are writing*; /gyàkʰǫ̂·mɔ̀/ *he is reading*, /gyákʰǫ̀·mɔ̀/ *they are reading*; /àdę̂·hèm/ *I slept*, /áde·hèm/ *they slept*; /kútà· ètpǫ́ǫ́/ *we showed the two pencils to them*, /kútà· étpǫ̂ǫ̀/ *we showed the pencils to them*; /ètǫ́·mé/ *we made them* (object: dual), /étǫ̀·mè/ *they* (unmixed group) *made them* (object: plur. of II), or *we made them* (object: plur. of subclass of I); /gyàǫ́·mé/ *I made it, them* (object: sing. of I, or plur. of II), /gyáǫ̀·mè/ *they* (mixed group) *made them* (object: plur. of sub-class of I); /àǫ́·mé/ *you* (sing.) *made it, them* (object: sing. of I, or plur. of II), /áǫ̀·mè/ *they made it, them* (object: sing. of I, or plur. of II); /ę̀ǫ́·mé/ *he made them* (object: dual), /ę́ǫ̀·mè/ *they* (dual) *made it, them* (object: sing. of I, or plur. of II); /bàtǫ́·mé/ *you* (sing.) *made them* (object: plur. of sub-class of I), /bátǫ̀·mè/ *you*

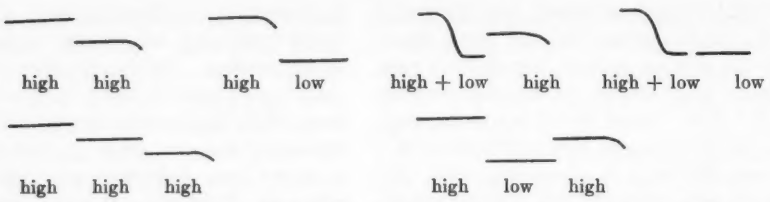

FIG. 1. Schematic representation of some tone sequences. The horizontal axis represents time, the vertical axis fundamental frequency of vibration.

(plur.) *made them* (object· plur. of sub-class of I).

4.3. A /high/ syllable may be phonetically falling in the end, particularly when followed by a /low/ one. This fall varies freely with a more or less sustained high level. It will, to a certain extent, depend on the character of the segmental phonemes whether the high level or the slightly falling pitch prevails: When the syllable ends in a short vowel or a voiceless consonant, there is generally no fall: /cégùn/ *dog*, /mátʰɔ̀n/ *girl*, /hǫ̀ɔ̀n/ *road*, /kútà·/ *pencils*, /ètpóttɔ̀/ *we are eating them* (dual), whereas the fall is common when it ends in a long vowel or a voiced consonant: /tá·dè/ *eye*, /só·dè/ *ring*, /tʰǫ́·sè/ *bones*, /gómgyà/ *behind*, /kómbɔ̀/ *old people*, /hóldà/ *dress*.

This sequence of a phonetically falling syllable followed by a /low/ syllable contrasts with the sequence of a phonemically high + low syllable followed by a /low/ syllable: In the /high + low/ syllable the fall occurs in the middle, often as a rapid step-down rather than a glide, and the low part of the syllable is somewhat sustained, before the low of the following syllable is reached. In the /high/ syllable preceding a /low/ one, on the other hand, the fall occurs only as a smooth down-glide in the end, leading directly into the low of the following syllable. Such was e.g. found to be the case in the following pair of utterances: /àhó· bàtǫ́·gyá/ *kill him, I said*, /à·hô· bàtǫ́·gyá/ *thank you, I said*. When the /high/ syllable is followed by another /high/ one there may be less of a fall in the former; a /high + low/ syllable in this position will show the characteristic step-down in the middle, followed by a step up to the following /high/, e.g. in the following pair of utterances: /k'ɔ́dál dɔ́/ *it is a waggon*, /k'ɔ́dâl dɔ́/ *it is round*.

An utterance-final /high/ syllable is phonetically fairly low. After another /high/ it may fall from [mid] or [low mid] to [low], and after a /low/ it may be [mid] or falling from [mid] to [high low]. The fall, if it occurs, differs from the fall in the /high + low/ syllable in the way described in the preceding paragraph. A final, phonetically fairly low /high/ preceded by another /high/ is, at least for this writer, difficult to distinguish from a /low/ preceded by a /high/, unless the two sequences are heard in immediate succession and thus contrasted. The step-up in fundamental frequency from a /low/ syllable to a final /high/ one may extend over as little as 15 cps. or less, as in the following utterance where the fundamental frequency in cps of each syllable is shown in brackets.

/ì· [170] p'ɔ· [170] gyà [170] t'á· [190] gyà [150] bǫ́ [165]/[15] *I saw the nice baby*.

Schematically we can show the various tone sequences as in Fig. 1.

The pitch intervals between successive /high/ syllables may be considerable. In fact, there is an unusual downward drift throughout Kiowa utterances between pauses. With a male speaker, whose funda-

[15] These, as well as other figures given in the following, are taken where there is, to a certain extent, a sustained frequency level in the middle of the syllable. The separation between the syllables does not, in these cases, indicate word boundary.

mental frequency of vocal cord vibration, in the recordings made, varies between 235 and 90 cps., it is thus quite common to observe a drift down on successive /high/ syllables over 80 cps. Thus, the utterance /ménǫ́·mé/ *you* (dual) *made them* (dual) was once observed to be pronounced as a series of descending pitch levels from 230 cps. on /mén/ to 150 cps. on the initial part of /mé/ (with the pitch trailing much further down towards the end, just before the cessation of voice), another time from 200 to 135 cps. In /gómgyá dɔ́/ *it is wind* the fundamental frequency descended step-wise from 220 to 145 cps., and in /átʰɔ́pá·lyá/ *they are hungry* from 230 to 150 cps., in /èkʰǫ́·gyá dɔ́/ *it is black* even from 205 cps. on /kʰǫ́·/ to 110 cps. on /dɔ́/.

But on every syllable of such a downward-drifting succession of /high/'s there is a contrast with a /low/:

/tʰǫ́·gúl/ *soda pop*, /tʰǫ́·gùl/ *waggon*; /tʰǫ́·gúl dɔ́/ *it is soda pop*, /tʰǫ́·gùl dɔ́/ *it is a waggon*; /k'ɔ́nkʰį́·gɔ̀/ *turtles*, /á·kʰį̀·gyà/ *flowers*; /pʰį́·bǫ́á· dɔ́/ *they are lamps*, /pʰį́·bǫ́á·dɔ̀/ *lamp*, /ɔ́·pį́· à·ǫ́/ *they gave me a fish*; /kú·tò áǫ́/ *you gave him a bird*, /kú·tò àǫ́/ *you gave them a bird*, /kú·tò ábǫ̀/ *they saw a bird*.

This does not mean, of course, that the /low/ tone always has a frequency of just above 100 cps.: The contrast between /high/ and /low/ is a question of relative frequency only. Notice e.g. the fundamental frequencies of the following pairs of utterances, each of them recorded twice, on different occasions:

/à [205, 190] ɔ̀n [190, 185] cà [180, 175] ą́ [200, 195]/ *I am walking*; /á [215, 225] ɔ̀n [170, 170] cà [170, 170] ą́ [180, 200]/ *they are walking*.

In the first utterance the /low/ syllables are all phonetically fairly high, gradually stepping down. However, there is a contrast with the second utterance, where there is also a stepping down in frequency, but where this rapid fall is accomplished entirely between the first two syllables, the first of which is /high/ and the second /low/.

Schematically, a Kiowa utterance consisting of a sequence of /high/ tones can be represented as shown on Fig. 2. If the last syllable is /low/ the pitch interval between the last two syllables will be larger than the others.

Though the prevailing tendency is towards a downward drift, a /high/ syllable has been observed to be raised above the level of a preceding /high/ syllable under special emphasis, e.g. once in /étpɔ́ttɔ̀/ *they are eating them*, which the informant said with heavy emphasis on /pɔ́t/, to distinguish it clearly from /étpɔ̀ttɔ̀/ *they are eating*. However, in such a case the step-up between the two /high/ syllables is small compared to the rise from a /low/ to a /high/ syllable, as in /ètpɔ́ttɔ̀/ *we are eating them* (dual). There may be a similar slight step-down between two /low/'s, small compared to the fall between /high/ and /low/. Such is the case between the first two syllables in /àɔ̀ncàą́/ *I am walking*, vs. /áɔ̀ncàą́/ *they are walking*.

In a sequence of /low/ tones, there is generally much less variation in fundamental frequency, though, than between /high/ syllables. The /low/ syllables follow one another roughly on the same level. Such has been the case e.g. in the following utterances:

/kɔ̀y tǫ̀·gyà gyàtmǫ̀hę̀·mɔ́/ *I am learning Kiowa*, /p'ǫ́·gyà gyàdɔ́/ *they are beads*, /mǫ̀·sɔ́·kʰǫ́·gyádɔ̀·dè gyàbǫ́/ *I saw a black crow*, /l·p'ɔ̀·gyà t'á·gyà gyàbǫ́/ *I saw a nice*

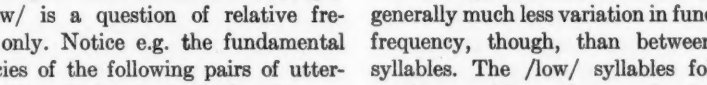

FIG. 2. Schematic representation of an utterance consisting of /high/ syllables only, and of an utterance the last syllable of which is /low/.

baby, /mátʰòn èl kú·tò gùtk'ò tʰàlí· syôndè áǫ́/ *the big girl gave a yellow bird to the small boy*, /yí· tèmɔ̀nkɔ̀·dòkʰį/ *two thousand*.

Representative utterances, with strings of /low/ syllables, by a male speaker show the following frequencies:
/ì· [175] p'è· [170] gyà [145] gyà [150] bǫ́ [165]/ *I saw a nice baby*; /cèn [175] bô· [205/150] kʰǫ̀· [155] gyà [160] gyà [155] bǫ́ [165]/ *I saw a black cow*; /â· [225/160] k'ì· [180] yà [180] ɔ̀n [180] cà [180] ą̀ [175]/ *they are walking with me*.

In the material collected for this paper the utterances are of limited length. It is conceivable that in connected speech there might occur such a long string of /high/ syllables that a break upwards in the downward drift would be likely, e.g. to bring out certain parts of the utterance. The points where such potential breaks occur are probably determinable in terms of morphological and syntactical borders. For the purposes of this paper these potential upwards breaks are disregarded. It is also probable that such breaks would have a small step-up compared to the rise in pitch between a /low/ and a /high/ syllable (cf. preceding paragraph). In a study of the intonation of Kiowa, however, they cannot be neglected.

5. Phonetically speaking, laryngealization is a marked feature in Kiowa. This laryngealization, which is only found in long syllables, may take the form of a rearticulation of the vowel with an intervening glottal constriction (hardly a complete closure) or rearticulation without such constriction, or simply laryngealization of the long vowel. When the laryngealized vowel occurs before a pause it is generally half-long only, with a glottal constriction in the end: /à·hô·/ [à·hô·ˀ] *thank you*. When the syllable is closed by a voiced consonant the laryngealization is less marked, and may even be completely absent, particularly in prepausal position. If it is there it will take the form of a glottal constriction between the vowel and the consonant: /tâl dɔ́/ [tâˀl· dɔ́/ *it is a skunk*, /cégùn dɔ́/ [cégùˀn· dɔ́/ *it is a dog*.

The occurrence of laryngealization can be predicted. Laryngealized is, or may be, any long /low/ or /high + low/ syllable, but never a long /high/ syllable:

/c'álì·/ [c'álìˀ·] *calf*, vs. /tʰàlí·/ [tʰàlí·] *boy*; /kútà· dɔ́/ [kùtàˀ dɔ́] *they are pencils*, vs. /á· dɔ́/ [á· dɔ́] *they are sticks* (/kútà·/ contains the element /á·/); /gyáǫ́·mè/ [gyáǫ́ˀmè] *they made them*, vs. /gyàǫ́·mé/ [gyàǫ́·mé] *I made them*; /są́·dɔ̀/ [są́·ˀdɔ̀] *children*; /cènbô·/ [cé'n·bô·ˀ] *cow*.

Spectrograms made of pairs of utterances which by earlier investigators had been thought to differ in laryngealization only, show that there is little consistent difference in resonance patterns, as seen from the wide filter pictures, whereas there is a consistent difference in pitch relationships. In these pairs, the so-called laryngealized syllable has a marked fall, or rather step-down, in pitch in the middle, whereas the non-laryngealized syllable has no such step-down.

Thus, though laryngealization has been pointed out as a salient feature of Kiowa by most investigators it is not here considered structurally relevant. By considering length and pitch contrastive we can take care of laryngealization on the sub-phonemic level, and the rearticulated vowel with or without glottal constriction and the laryngealized long vowel are all to be considered as /V̂·/ or /V̌·/, and [V'C] as /V̂C/ or /V̌C/.

Nor do we have to set up [ˀ] as a separate phoneme (cf. **1**). Glottal stops do occur, but as a predictable, non-phonemic segment between heterosyllabic vowels. This glottal stop is strong, differing from the partial laryngeal constriction found in the laryngealized vowels described in the preceding paragraph. [ˀ] occurs between identical as well as between non-identical vowels: [V_1ˀV_1] /V_1V_1/, [V_1ˀV_2] /V_1V_2/. Thus, there is a contrast between [V_1ˀV_1] /V_1V_1/, with a strong glottal stop, and [V_1ˀV_1] /V̌·/ or

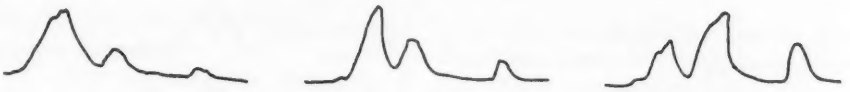

FIG. 3. Pressure traces, showing normal relationship between pitch and stress. The horizontal axis is time, the vertical axis acoustical pressure. The scales are arbitrary, but linear.

/V̂·/, with a slight laryngeal constriction only (cf. **3**):

[hóldà ʔàʔɔ́ndɔ́] /hóldà àɔ́ndɔ́/ *I want a dress*, [kútàʔà ʔɔ́ndɔ́] /kútà· ɔ́ndɔ́/ *he wants pencils*, and [V_1ʔV_1C] /V_1V_1C/ contrasts with [V'C] /V̂C/ or /V̀C/: [dáʔàl tâ'l á'ɔ̨́] /dáàl tâl áɔ̨́/ *you must give him the skunk*.

6. Stress. Stress is also non-contrastive. It may vary freely without causing ambiguity, but it is generally conditioned by one or more of several factors. If stress is defined in terms of acoustical pressure as measurable by a continuous level recorder or on a cathode-ray oscillograph, the following relations have been observed:[16]

a. An open vowel is generally more stressed than a close one. Thus, within each of the following utterances the most open vowel carries the heaviest stress. (Pitch is here kept under control, all or most of the syllables being /high/.) /étpɔ́ttɔ̀/ [étˈpɔ́ttɔ̀] *they are eating them*, /pʰí·bɔ̨́á· dɔ́/ [pʰí·bɔ̨́ˈá· dɔ́] *they are lamps*, /ɔ́·pɨ̨· èl/ [ˈɔ́·pɨ̨· èl] *a big fish*.

b. A /high/ syllable is in general more stressed than a /low/ one. Thus, in the following pairs the syllable whose number is indicated by the figure preceding each pair has a heavier stress relative to the surrounding syllables in the first member of the pair than in the second: (2) /kˈɔ́nkʰí·gɔ̀/ *turtles*, /á·kʰɨ̨·gyà/ *flowers*; (2) /sép dɔ́/ *it is rain*, /sépdɔ̀/ *it is raining*; (3) /cégùn gyápɔ̨́ɔ̨́/ *I showed you the dog*, /cégùn gyàpɔ̨́ɔ̨́/ *I showed them the dog*; (1) /étɔ̨́·mé/ *we made them* (object: inverse of I), /ètɔ̨́·mé/ *we made them* (object: dual).

In the following pairs of verb forms, it is the /high/ syllable which carries the heaviest stress, whether this happens to be the prefix or the stem: /gyágùttɔ̀/ [ˈgyágùttɔ̀] *they are writing*, /gyàgúttɔ̀/ [gyàˈgúttɔ̀] *he is writing*; /áɔ̨́·mè/ [ˈáɔ̨́·mè] *they made them* (object: plur. of sub-class of II), /àɔ̨́·mé/ [àˈɔ̨́·mé] *you* (sing.) *made it, them* (object: sing. of I or plur. of II).

In the following words it is the /high/ syllable which carries the heaviest stress, irrespective of its place within the word: /tʰɔ́·gùl/ [ˈtʰɔ́·gùl] *waggon*, /kɔ́lzèp/ [ˈkɔ́lzèp] *milk*, /á·kʰɨ̨·gyà/ [ˈá·kʰɨ̨·gyà] *flowers*, /ɔ̀lhą́ymé/ [ɔ̀lˈhą́ymé] *mosquito*, /pɔ̀lą́·yì/ [pɔ̀lˈą́·yì] *rabbit*, /ɔ̀nhá·dè/ [ɔ̀nˈhá·dè] *bear*.

c. A /high + low/ syllable has usually more stress than either /high/ or /low/ syllables. Thus, in the following pairs the syllable whose number is indicated by the figure preceding each pair has a heavier stress relative to the surrounding syllables in the first member of the pair than in the second: (1) /gyâ·kʰɔ̨́·mɔ̀/ *they are reading to me*, /gyákʰɔ̨́·mɔ̀/ *they are reading*; (2) /à·hô· bàtɔ̨́·gyá/ *thank you, I said*, /àhó· bàtɔ̨́·gyá/ *kill him, I said*; (3) /óydè hɛ̨́·gyà/ *those toys*, /óydè hɛ̨·gyà/ *his toys*.

The normal stress relationships between /high + low/, /high/, and /low/ syllables are seen from the pressure traces in Fig. 3 of the triplet /gyâ·gùttɔ̀/ *they are writing to me*, /gyágùttɔ̀/ *they are writing*, /gyàgúttɔ̀/ *he is writing*. Here the prefix /gyâ·/ is shown to be more stressed than /gyá/, but both are stronger than the following /low/ stem. The

[16] It should be pointed out that the findings do not necessarily coincide with the subjective perception of people with e.g. an English language background. This will be noticed especially with regard to the last point mentioned, i.e. the openness of the vowel.

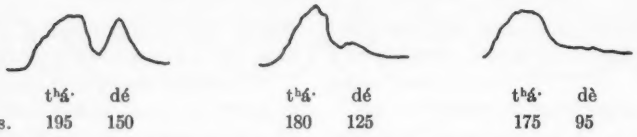

FIG. 4. Pressure traces showing inconsistencies in stress patterns in different utterances of the same word.

prefix /gyà/, however, is less stressed than the following /high/ stem.

d. A long syllable is generally more stressed than a short one: /kʰɔ́·dɔ́/ [ˈkʰɔ́·dɔ́] *blanket*, /tá·tʰą́/ [ˈtá·tʰą́] *she got jealous*, /átʰɔ́·pá·lyá/ [áˈtʰɔ́·ˈpá·lyá] *they are hungry*, /k'ɔ́dál dɔ́/ [k'ɔ́ˈdál dɔ́] *it is a waggon*, /bátǫ́·gyà/ [báˈtǫ́·gyà] *they said it*, /déólp'ǫ́ǫ́/ [déˈólp'ǫ́ǫ́] *I washed something for them.*

e. When a /high/ or a /high + low/ tone is combined with length the stress is particularly marked: /kʰɔ́·dɔ̀/ [ˈkʰɔ́·dɔ̀] *it has been bought*, /tá·tʰą̀/ [ˈtá·tʰą̀] *it is shining*, /tʰàlí·/ [tʰàˈlí·] *boy*, /sɔ̀pʰól/ [sɔ̀ˈpʰól] *owl*, /tɔ̀kʃ·ní/ [tɔ̀ˈkʃ·ní] *boot*, /tˈǫ́·déì·/ [ˈtˈǫ́·dèì·] *mouse.*

f. An open long syllable is commonly more stressed than a closed one: /k'ɔ̀nkʰʃ·gɔ̀/ [k'ɔ̀nˈkʰʃ·gɔ̀] *turtles.*

g. The final syllable in a breath group, when following a syllable of the same tone, is less stressed than the preceding one, e.g. in the verb stem in the following instances: /dèólp'ǫ́ǫ́/ *I washed*, /dê·ɔ̀lp'ǫ̨ǫ̨/ *they washed for me.*

h. The various factors may conflict in their stress conditioning, and there is then more fluctuation in stress. However, the /high/ tone will commonly be accompanied by stress under most conditions: /mátʰɔ̀n/ [ˈmátʰɔ̀n] *girl*, /są̀·né/ [są̀·ˈné] *snake*, /mą̀·yóp/ [mą̀·ˈyóp] *women*, /gyágùttɔ̀/ [ˈgyágùttɔ̀] *they are writing* (cf. /gyàgúttɔ̀/ [gyàˈgúttɔ̀] *he is writing*), /éǫ̨·mè/ [ˈéǫ̨·mè] *we made it.*

Though these are tendencies which seem to prevail statistically they are by no means absolute rules, and we find a great amount of free fluctuation. There are instances where a close vowel is more stressed than an open one, a /low/ syllable has equal stress with or more stress than a /high/ one, a /high + low/ syllable is not more stressed than a /high/ or a /low/ one, a short syllable is more stressed than a long one. Two utterances of the same word may show different stress patterns, as shown in Fig. 4, where /tʰá·dé/ *matches* in one case shows a pressure curve very much like that of /tʰá·dè/ *he is married.*

7. No complete analysis of the function of tone in Kiowa is attempted. However, a study of selected parts of Kiowa lexicon and grammar indicates that neither can be dealt with adequately without regard to tone.

7.1. The various combinations of tone may perhaps be seen most clearly in the nouns, where the following patterns have been observed. The form found in the frame *it is—*, *they are—*, i.e. preceding /dɔ́/, /gyàdɔ́/, /èdɔ́/, /ędɔ́/, will be considered the basic one. This is done partly because it is easier to recognize tonal contrasts in such a frame than in the words said in isolation, and partly because the maximum number of contrasts seems to occur in this particular frame, whereas other frames may show a levelling out of certain tone contrasts. Also, this is a frame where most or all nouns may be put—in fact, one might possibly define the noun class on the basis of occurrence in this environment.

7.1.1. Monosyllabic nouns: /ˊ/ and /ˆ/. (/ˆ/ has not been found in this frame.)

/ˊ/: /pól dɔ́/ *it is a bug*, /tą́· dɔ́/ *it is a star*, /tʰǫ́· dɔ́/ *it is water*, /tˈɔ́· dɔ́/ *it is a spoon*, /cóy dɔ́/ *it is coffee.*

/ˆ/: /pę̂· dɔ́/ *it is a turkey*, /tâl dɔ́/ *it is a skunk*, /kˈô· dɔ́/ *it is a knife*, /kû́y dɔ́/ *it is a cayote*, /cę̂· dɔ́/ *it is a horse.*

7.1.2. Disyllabic nouns: /ˊˊ/, /ˊˆ/, /ˆˆ/,

/ˇ/, /ˆ/. (/ˈˆ/, /ˆˇ/, /ˆˆ/, /ˇˈ/ have not been found in this frame.)

/ˈˈ/: /ɔ́·pɻ́· dɔ́/ *it is a fish*, /tʰǫ́·gúl dɔ́/ *it is soda pop*, /tʰá·dé gyàdɔ́/ *they are matches*, /pʰátkyá gyàdɔ́/ *they are goods*, /tó·gúl dɔ́/ *it is a young man*.

/ˈˇ/: /k'yą́·hì̩· dɔ́/ *it is a man*, /tʰǫ́·gùl dɔ́/ *it is a waggon*, /kɔ́lzèp dɔ́/ *it is milk*, /tá·dè dɔ́/ *it is an eye*, /mátʰɔ̀n dɔ́/ *it is a girl*.

/ˆˈ/: /są̂·dɔ̀ èdɔ́/ *they are children*, /k'ǫ̂·dɔ̀ èdɔ́/ *they are tomatoes*, /k'ɔ̂·gɔ̀ èdɔ́/ *they are knives*, /kʰǫ̂·tè dɔ́/ *it is grandfather*, /hę̂·gyà gyàdɔ́/ *they are toys*.

/ˇˇ/: /tʰàlí· dɔ́/ *it is a boy*, /sòpʰól dɔ́/ *it is an owl*, /mɔ̀hɻ́· dɔ́/ *it is a screech owl*, /mą̀·yɻ́· dɔ́/ *it is a woman*, /mą̀·yóp èdɔ́/ *they are women*.

/ˆˇ/: tò·hɻ́· èdɔ́/ *it is a mocassin*, /tʰà·lyôy dɔ́/ *it is grandmother*, /cènbô· dɔ́/ *it is a cow*, /t'èlbǫ̂· dɔ́/ *it is a knee*, /k'ɔ̀âl gyàdɔ́/ *they are dishes*, /mɔ̀·k'ɔ̂n èdɔ́/ *it is a nose*.

7.1.3. No complete study has been made of the possible tone combinations in polysyllables, but the following patterns have been observed:

/ˈˈˈ/: /épótkʰɔ́ gyàdɔ́/ *they are crackers*.

/ˈˈˆ/: étʰáttɔ̀ èdɔ́/ *it is a grain of corn*, /k'ɔ́nkʰɻ́·gɔ̀ èdɔ́/ *they are turtles*.

/ˈˈˇ/: /kútà·dɔ̀ èdɔ̀/ *it is a pencil*, /á·kʰì̩·gyà gyàdɔ́/ *they are flowers*, /t'ǫ́·dèl· dɔ́/ *it is a mouse*.

/ˈˆˈ/: /hę̂·tègyà gyàdɔ́/ *it is a story*.

/ˈˈˈ/: /ì·p'ɔ́·gyá dɔ́/ *it is a baby*, /ɔ̀lhą́ymé dɔ́/ *it is a mosquito*, /tòkɻ́·ní dɔ́/ *it is a boot*.

/ˈˈˆ/: /pɔ̀lą́·yì dɔ́/ *it is a rabbit*, /ɔ̀nhá·dè dɔ́/ *it is a bear*.

/ˆˈˈ/: /zɔ̀ntʰâ·pé dɔ́/ *it is a squirrel*.

/ˆˆˇ/: /tɔ̀npʰâ·gɔ̀ èdɔ́/ *it is a belt*, /k'ɔ̀â·tɔ̀ èdɔ́/ *it is a dish*.

/ˈˈˈˆ/: /épótkʰɔ́gɔ̀ èdɔ́/ *it is a cracker*, /pʰɪ́·bǫ́á·dɔ̀ èdɔ́/ *it is a lamp*.

7.2. No complete analysis has been made of possible tone patterns in the modifiers, but a contrast between /ˈˈ/, /ˈˆ/, and /ˇˈ/ has been observed in disyllabic modifiers:

/tò· kʰǫ́·gyá àɔ́ndɔ́/ *I want the black house*, /tò· t'á·gyà àɔ́ndɔ́/ *I want the nice house*, /tò· gùtk'ó àɔ́ndɔ́/ *I want the yellow house*.

7.3. The role played by tone in verb morphology has already been demonstrated in a series of minimal pairs (**4.2**). The monosyllabic personal prefixes show all the possible tone patterns, before basically /high/, /low/, and /high + low/ stem syllables. (The tone of the stem is sometimes perturbed.)

/cégùn áhɔ́·gyà/ *you bought a dog for him*, /cégùn àhɔ́·gyà/ *you bought a dog for them*, /cégùn â·hɔ̀·gyà/ *they bought a dog for me* (stem perturbed to low); /gyágùttɔ̀/ *they are writing* (stem perturbed to low), /gyà·gúttɔ̀/ *he is writing*, /gyâ·gùttɔ̀/ *they are writing to me* (stem perturbed to low); /áɔ̀ncàą́/ *they are walking*, /àɔ̀ncàą́/ *I am walking*, /â· k'ì·yà ɔ̀ncàą́/ *they are walking with me*; /gyákʰǫ̀·mɔ̀/ *they are reading* (stem perturbed to low), /gyàkʰǫ̀·mɔ̀/ *he is reading*, /gyâ·kʰǫ̀·mɔ̀/ *they are reading to me* (stem perturbed to low); /émhâ·gú/ *they are getting up*, /èmhâ·gú/ *he is getting up*.

Kiowa has a complicated set of personal verbal prefixes, denoting subject—object relationships. Wonderly, Gibson, and Kirk have established four noun classes in Kiowa,[17] and the verb forms, prefix and stem, are determined by the classes and numbers of the nouns which are implied or expressed overtly as subject, first and second object. There can be no adequate description of the Kiowa verbal system without accounting for tonal contrasts: The set of prefixes have their characteristic tones, and in the stem there is perturbation from high and high + low to low with certain subjects and certain types of implied or expressed objects.

7.3.1. The subject-object prefix is low when the second object is 3rd person plural mixed, the subject is singular, and the first object is in its basic form, i.e. singular of class I, plural of class II, or dual of any class, and when the subject is plural and the first object is dual. It is high + low, in a monosyllabic or a disyllabic pattern, when

[17] New material, collected for the purposes of this analysis, shows that these noun classes will have to be supplemented by at least several subclasses.

TABLE 1

Second object: 3rd person singular. (Subject) *gave* (first object) *to him*

Subject	1st object			
	I singular	II plural	I and II inverse	I and II dual
1st sing.	gyá + ′	yán + ′	gɔ́ + ′	nén + ′
2nd sing.	á + ′	án + ′	ɔ́ + ′	én + ′
3rd sing.	á + ′	án + ′	ɔ́ + ′	én + ′
1st plur.	ê· + ′	égì· + ˋ	édɔ̀· + ˋ	édè· + ˋ
2nd dual	mâ· + ˋ	mánì· + ˋ	mónɔ̀· + ˋ	ménè· + ˋ
2nd plur.	bâ· + ˋ	bágì· + ˋ	bótɔ̀· + ˋ	bédè· + ˋ
3rd dual	ę̂· + ˋ	énį̀· + ˋ	énɔ̨̀· + ˋ	énę̀· + ˋ
3rd plur. mixed	â· + ˋ	gyâ· + ˋ	dô· + ˋ	dê· + ˋ
3rd plur. unmixed	ê· + ˋ	égì· + ˋ	édɔ̀· + ˋ	édè· + ˋ

TABLE 2

Second object: 3rd person plural mixed. (Subject) *gave* (first object) *to them*

Subject	1st object			
	I singular	II plural	I and II inverse	I and II dual
1st sing.	gyà + ′	gyàt + ′	dé + ′	nèn + ′
2nd sing.	à + ′	bàt + ′	bé + ′	mèn + ′
3rd sing.	′	gyà + ′	é + ′	ę̀ + ′
1st plur.	é + ˋ	ét + ˋ	ét + ′	èt + ′
2nd dual	má + ˋ	mán + ˋ	mén + ′	mén + ′
2nd plur.	bá + ˋ	bát + ˋ	bét + ′	bèt + ′
3rd dual	ę́ + ˋ	én + ˋ	én + ′	én + ′
3rd plur. mixed	á + ˋ	gyá + ˋ	ét + ′	èt + ′
3rd plur. unmixed	é + ˋ	ét + ˋ	ét + ′	èt + ′

the second object is 3rd person singular, the subject is dual or plural, and the first object is of any type. Elsewhere the prefix is high.

7.3.2. With a personal subject (1st, 2nd, or 3rd person), and 1st person plural, 2nd person dual and plural, or 3rd person singular, dual, and plural as second object, the following tone relationships were found in the first syllable of the verb stem when /kú·tò/ *bird*, of class I, and /á·tʰɔ̀pàhàl/ *chairs*, of class II, were used as first object, expressed overtly or implied: When the subject is dual or plural, and the second object is 3rd person plural mixed, a high and a high + low stem is perturbed to low when the first object is singular of class I or plural of class II. When the subject is dual or plural, and the second object is 3rd person singular, a high and a high + low stem is perturbed to low with any kind of first object. Elsewhere, the stem has its basic high or high + low tone. (In this limited data only one instance of an apparently basically low stem has been observed, /-ɔ̀ncàą́/ *walk*.)

7.3.3. Examples illustrating **7.3.1** and **7.3.2** are found throughout the preceding paragraphs. However, as a more compact illustration of the role played by tone in verb morphology, in tables 1 and 2 the personal prefixes and the tone of the first stem syllable are given, for personal subjects, and 3rd person singular and 3rd person plural mixed second objects.[18] The verb used is /ǫ́/ *give*, and the implied first object is some form of /kú·tò/ *bird*, of class I, and /á·tʰɔ̀pàhàl/ *chairs*, of class II. Each prefix

[18] The same forms are elicited whether English has no second object, or a 3rd person plural mixed second object.

denotes subject as well as object relationships, or rather, it contains meaning components which, in many other languages, we are used to find represented by several separate forms. Whether the prefixes can be considered as fused forms, comprising separate subject and object formal elements, is not clear yet. A morphological analysis of the forms given in the tables, in terms of morphemes and allomorphs, is not attempted. For an explanation of the noun classes, see Wonderly, Gibson, and Kirk.

8. No complete analysis of tone perturbations is attempted. In the following, there will only be given some examples.

The perturbations seem to be morphologically rather than phonologically defined. A progressive perturbation to low is the most common type. Such perturbations in the verb stem have been demonstrated in **7.3.** Other instances are given in the following section.

8.1. After the possessives /nǫ́/ *1st person singular*, /ǫ́·gò/ *1st person plural*, /àm/ *2nd person*, /á/ and /óydè/ *3rd person*, all nouns are perturbed to low:

/ǫ́·dè nǫ́ cègùn ǫ́dò/ *this is my dog* (basic: /cégùn/ *dog*); likewise: /nǫ́ màn/ *my arms* (basic: /mán/), /nǫ́ cǫ̀·/ *my horse* (basic: /cǫ̂·/), /nǫ́ ì·tʰà/ *my daughter* (basic: /í·tʰá/), /nǫ́ są̀·dò/ *my children* (basic: /są̂·dò/), /nǫ́ màncʼǫ̀·/ *my fingernail* (basic: /máncʼǫ́·/), /nǫ́ ànsòy/ *my foot* (basic: /ànsôy/); /ǫ́·gò cègùn/ *our dog*, /ám cègùn/ *your dog*, /á ì·tè/ *his daughter*, /óydè cègùn/ *their dog*; /óydè kùt gyàdó/ *that is their book*, cf. /óydè kút gyàdó/ *that is a book*.[19]

8.2. After the negative /hón/, possessives and nouns are perturbed to low:

/ǫ́·dè hón nǫ̀ cègùn edǫ̀·mò/ *this is not my dog*.

8.3. One group of monosyllabic, basically high, nouns is consistently perturbed to low before modifiers, whereas other nouns are consistently high in this position:

/tò· él gyàbǫ́/ *I saw the big house* (basic: /tó·/), /cǫ̀· él gyàbǫ́/ *I saw the big needle* (basic: /cǫ́·/), /tǫ̀· él gyàbǫ́/ *I saw the big spoon* (basic: /tǫ́·/; cf. /pól èl gyàbǫ́/ *I saw the big bug*, /pó· èl gyàbǫ́/ *I saw the big beaver*, /kút èl gyàbǫ́/ *I saw the big book*, /cʼó· èl gyàbǫ́/ *I saw the big stone*, /é· bìn gyàtbǫ́/ *I saw big loaves of bread*.[20]

The monosyllabic /^/ nouns are unperturbed, but the following monosyllabic modifier is perturbed to low:

/cę̂· èl gyàbǫ́/ *I saw the big horse*, /kʼô· èl gyàbǫ́/ *I saw the big knife*, /pę̂· èl gyàbǫ́/ *I saw the big turkey*.

The same tonal patterns are found with other monosyllabic modifiers, like /gúl/ *red*, /tʼą́y/ *white*. Disyllabic modifiers seem to retain their basic tone patterns, but the same group of monosyllabic nouns are perturbed to low:

/tò· kʰǫ́·gyá gyàhó·gyà/ *I bought the black house*, /cǫ̀· tʼá·gyà gyàhó·gyà/ *I bought the good needle*, /cǫ́· gùtkʼó gyàhó·gyà/ *I bought the yellow needle*.

In a disyllabic modifier following a disyllabic noun there is some free fluctuation. The tonal contrast is often cancelled, all syllables being perturbed to low, as in:

/kú·tò kʰǫ̀·gyà gyàhó·gyà/ *I bought the black bird* (basic: /kʰǫ́·gyá/ *black*), /kú·tò tʼà·gyà gyàhó·gyà/ *I bought the good bird* (basic: tʼá·gyà/ *good*); /są̀·né kʰǫ̀·gyà gyàbǫ́/ *I saw the black snake*, /są̀·né gùtkʼò gyàbǫ́/ *I saw the yellow snake* (basic: /gùtkʼó/ *yellow*).

However, the same and similar phrases have been observed without such perturbation.

8.4. Perturbation to low has been observed in the second part of compounds:

/tʰá·tè kʼyą̀·hį̀·/ *a married man* (basic: /kʼyą́·hį̀·/ *man*), /pálà·/ *beds* (basic: /pál/ *quilt*, /á·/ *sticks*), /kútà·/ *pencils* (basic:

[19] /óydé ɬ ɔldá/ *her dress* (basic: /hóldà/) does not seem to fit the general pattern of perturbations; cf. /óydè hóldà/ *that dress*.

[20] The monosyllabic modifier has been marked as /ˋ/ after monosyllabic /ˊ/ in these cases. However, its phonemic status is not quite established —it may turn out to be /ˊ/ after all, so that the monosyllabic modifier is /ˊ/ in any case, after /ˊ/ as well as after /ˋ/ nouns.

/kút/ *writing*, /á·/ *sticks*), /hóldà pʰàtkòt/ *dress material* (basic: /hóldà/ *dress*, /pʰátkòt/ *material*).

9. Tone in Kiowa does not seem to have such a heavy functional load as in many other tone languages. We have seen that there are certain limitations in the distribution of tones, both within the syllable (**4.1**), the nouns (**7.1**), and the verbs (**7.3**). In certain contexts, all tones are perturbed to low (**8**). It is likely that emphasis on certain parts of the utterance will obliterate tone contrasts in other parts of it, as we have seen in the noun + modifier construction (**8.3**). One is reminded of the situation in Swedish and Norwegian, where the contrast between the two basic word tones is cancelled when there is no sentence stress on the words in question.

An analysis of emphasis and intonation is required before the tonal analysis of Kiowa can be completed, inasmuch as the tonemes may be expected to vary in phonetic actualization and possibly also in distribution in reference to these other matters.

Several problems of general interest have emerged from this study of suprasegmental features in Kiowa:

a. There may be languages where the suprasegmental features are so much interwoven that it is only by fairly complicated statements one or more of them can be predicted in terms of one or more of the others.

b. The variation in terms of fundamental frequency of one phonemic pitch level may be considerable, more so than has been observed in languages so far. In Kiowa, it is the downward drift throughout the utterance which is most noticeable.

c. Once again it has become abundantly clear that it is difficult to determine the physical correlates of what linguists call 'stress.' We do not know what to measure, or what dimensions in the physical world we react to when we believe that we hear differences in 'stress'. Strictly speaking, it does not even make sense to define it as acoustical pressure, or amplitude of vibration, for then one might ask: what kind of amplitude, measured with what kind of instruments? peak amplitudes, or amplitudes averaged over certain periods of time, or root-mean-square values? Our instruments will give different answers according to what questions we ask them. It seems imperative that experimental phonetics should study the relations between perception of loudness and various factors in the physical world.[21] In addition, the linguist will have to define or redefine stress for each language individually, in terms of one or more factors like loudness, length, and pitch.

[21] R. H. Stetson's studies (see his Motor Phonetics, Amsterdam: North-Holland Publishing Company, 1951) are concerned with measurements of air pressure and muscular movements, without correlating them with perception of loudness.

For studies of the relative INTENSITIES of vowels, varying with individual vowels and with consonant environments, see: G. Fairbanks, A. S. House, and E. L. Stevens, JASA 22, 457–459 (1950); A. S. House and G. Fairbanks, JASA 25, 105–113 (1953). No experimental study on the relative LOUDNESS of sounds and syllables in speech has, to my knowledge, been made. For studies of loudness of pure tones, frequency bands, and white noise, and scales for such loudness, see e.g. Fletcher and Munson, JASA 5, 82–108 (1933); Fletcher and Munson, JASA 9, 1–10 (1937); Beranek and Peterson, JASA 20, 592(A) (1948); Munson and Garner, JASA 22, 177–190 (1950); Beranek et al., JASA 23, 261–269 (1951); Garner, JASA 24, 153–157 (1952); Guelke and Helm, JASA 24, 317–322 (1952); Pollack, JASA 24, 533–538 (1952); Garner, JASA 26, 73–88 (1954). The Handbook of Experimental Psychology, ed. by S. S. Stevens. New York: John Wiley and Sons, 1951, shows very little material on this subject; see especially pp. 1040–1074, with a bibliography.

WITOTO VOWEL CLUSTERS

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1. Problem stated
2. Postulated solutions
2.1. Interpretation A: geminated vowels
2.2. Interpretation B: semiconsonants
2.3. Interpretation C: complex vowel phonemes
2.4. Interpretation D: composite
2.5. Interpretation E: complex syllable nuclei
3. Phonemic structure

The purpose of this paper is to present the problem of vowel clusters in Witoto,[1] with various alternate solutions to the problem; and to describe the phonemic structure of the language in relation to the solution chosen among the alternates.

1. Witoto has clusters of from two to seven diverse vocoids: eímo[2] *wild boar*, eíode *he grew old*, makáoiakade *he wants to walk much*, uíïaï *many parrots*, húíauaï *many barbasco roots*, ráuaioiakade *he always wants to hunt far off*. Clusters of two or three vocoids are most common. Certain clusters of two vocoids[3] differ in timing in different situations. It is the interpretation of these differences which constitutes the major problem of Witoto phonemic analysis.

Clusters of two diverse vocoids may occur in the following patterns (low dot here indicates timing of two moras; absence of dot, timing of a single mora): (1) in which the first vocoid is stressed (symbolized V́.V), (2) in which the second vocoid is stressed (V.V́), (3) in which neither vocoid is stressed, but the timing is that of two moras (V.V), (4) in which there is a single hovering stress spread over the two vocoids but the timing is that of a single mora (V́V́), and (5) in which neither vocoid is stressed, but the timing is that of a single mora (VV). Examples follow. Pattern 1 [V́.V]: (h)á.i(kīna) *cotton plant*, (ñ)ú.e(hi) *clean water*; Pattern 2 [V.V́]: (m)a.í(kahī) *manioc tuber*, i.ó(gobe) *little trail*; Pattern 3 [V.V]: (kī.ón)a.i('da)[4] *have seen*, (pák)u.a(na) *he is fishing*; Pattern 4 [V́V́]: (id)áí(be) *last leaf*, (g)úí('da) *drink*; Pattern 5 [VV]: (kī.ón)ai('da) *causes an itch*, (tók)ua(na) *he jumped*. Not all clusters of two vocoids occur in all patterns. Actual clusters recorded and the patterns in which they have been found are presented in Table 1.

[1] Witoto is spoken by 80 or more families of Indians inhabiting the tributary rivers north of the Amazon from Iquitos, Peru, to the Colombian border and is divided into three major dialects which are mutually intelligible to varying degrees. Practically all the Witoto people of Peru have been transplanted from their original habitat between the Putumayo and Caquetá Rivers in Colombia about 20 years ago. There are estimated to be between 4,000 and 5,000 Witotos still in Colombia, but we have had no access to them thus far. The material of this paper is from the Muinánï dialect spoken by approximately 12 families situated on the Ampiyacu River in Peru, a little above the site of Pucaurquillo, and was gathered during field trips in the years 1952–4 under the auspices of the Summer Institute of Linguistics. The chief informant for this material has been Ramon Zeballo Dia. The author wishes to acknowledge especially valuable help in his field work by Olive Shell, Wesley Thiesen, and Eugene Loos. The present paper was written in the workshop of the Summer Institute of Linguistics at the University of Oklahoma, 1955. The author is indebted to Viola Waterhouse for assistance in the organization of the data.

[2] e and o are used as orthographic symbols for phonetic [ɛ] and [ɔ].

[3] There are also certain clusters of three vocoids which differ in timing in various situations, but in that they contain two vowel clusters that follow the normal language patterns, they will not be dealt with under each proposed phonemic interpretation, but only in the light of the final chosen solution. See **3**.

[4] 'd and 'b are used as orthographic symbols for complex phonemes made up of glottal stop plus alveolar voiced stop [ʔd], and glottal stop plus bilabial voiced stop [ʔb].

TABLE 1

	ui	ue	ua	ai	io	ia	ae	ïi	ïa	aï	oi	ei	iï	ie	ïo	ïe	iu	oï	ïu	ao	oa	au	eï	ea	eo	oe
1. V̆·V	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√			√	√	√	√	√	√	√
2. V·V̆	√	√	√	√	√	√	√	√	√	√	√	√	√		√		√	√		√	√	√	√			
3. V·V	√	√	√	√	√	√	√	√	√					√	√	√				√				√	√	√
4. V̆V̆	√	√	√	√	√	√	√	√		√	√	√	√	√	√											
5. VV	√	√	√	√	√	√			√	√	√	√	√	√	√	√	√	√	√							

There do not appear to be any particular systematic limitations, but clusters ui, ue, ua, ai, io, ia have been observed in all patterns; ae, ïi in all but Pattern 5; ïa in all but Pattern 4; aï, oi, ei, iï in all but Pattern 3; ie in all but Pattern 2; ïo in all but Pattern 1; ïe occurs only in Patterns 1, 3, 5; iu only in Patterns 1, 2, 5; oï only in Patterns 2, 5; ïu only in Pattern 5; ao only in Patterns 1, 2, 3; oa, au, eï only in Patterns 1, 2; ea, eo, oe only in Patterns 1, 3.

Clusters of like vocoids[5] occur in Patterns 1, 2, and 3, that is with either member stressed or with both unstressed. In addition, another sequence type, Pattern 6 [V̆.V̆] is found with like vocoids, in which both members may be stressed, but with the timing of two moras. Examples follow. Pattern 1: (t)ú.u(de) *he makes sorrowful*; Pattern 2: (k)u.ú(be) *leaf of a tree*; Pattern 3: (máí kúé ǰ)u.u *now follow me*, (á'd)o.o *one-half*, (máí ku)e.e *now write*, (haïbîr)i.i-('dīkue) *I will prepare manioc drink*, (ú'ur)i.i('de) *he will talk much*, (nî)o.o(godo) *that banana!*; Pattern 6: ('du)î.î(ri) *will open*, (máí kue h)î.î *now heal me*.

Certain specific clusters of two diverse vocoids may occur in contrasting patterns. For example, the cluster ai may occur in Pattern 3 [V.V] in which it has the timing of two moras or in Pattern 5 [VV] in which it has the timing of one mora. The clusters[6] which so occur are ui, ue, ua, ai, io, ïe, ïa, ïo, ie, ia: (túr)u.i *tapir bathing hole*, versus (híb)ui *eel-like fish*; (hipík)u.e *brook of the Caymita people*, versus (ï.ík)ue *I'm a man*; (pák)u.a(na) *he's fishing*, versus (tók)ua(na) *he jumped*; (kī.ón)a.i('da) *have seen*, versus (kï.ón)ai('da) *causes an itch*; (péret)i.o *centipede*, versus (kú)io *earthworm*; (én)ï.e *earth*, versus (ré.ï)ïe *firewood*; (u.í)ï.a(ï) *many parrots*, versus (háî)ïa(ïde) *hard*; (kîr)ï.o *palm for basket*, versus (náî)ïo *night*; (ît)i.e *teeth*, versus (kīrá)ie *ribs*; (aitîdor)i.a(kade) *she habitually wants to run away*, versus (hé)ia(ï) *people of the Rat clan*.

2. Five alternate solutions to this problem are described and compared.

2.1. Interpretation A is to consider the first vocoid of diverse clusters in Pattern 3 [V.V] as phonemically two like vowels. Pattern 3 would thus be /$V_1V_1V_2$/, and the contrast between Pattern 3 [V.V] and Pattern 5 [VV] would be shown quite easily as in /kïónaai'da/ (Pattern 3) *have seen* versus /kïónai'da/ (Pattern 5) *causes itch*.

[5] The term "clusters of like vocoids" is a prephonemicization used in this paper to refer to phonetically long vocoids. These long vocoids are interpreted phonemically as clusters because (1) they are two moras in length, (2) either mora may be stressed, (3) the second mora may be replaced by a diverse vowel under certain morphophonemic conditions, (4) they fit into the patterns already set up by the large number of diverse clusters, (5) there does not seem to be any particular reason for setting them up as a separate vowel category.

[6] It will be noted that in a number of examples, the total number of contiguous vocoids is more than two, but only the two vocoids illustrated are considered pertinent in each case. Examples were chosen in terms of closest contrast of the clusters in question, rather than in terms of occurrence without other contiguous vocoids, which in many cases is extremely difficult to find in view of the preponderance of vocoid sequences in the language.

This appears to be an attractive solution in that phonetically contrasting sequences are orthographically contrasting as well and the phonetic difference in timing between Pattern 3 [V.V] and Pattern 5 [VV] is handled as a phonemic difference in the size of the cluster.

The further application of Interpretation A may be seen in terms of uV clusters. The five patterns are now shown and illustrated as they would be handled by this interpretation: Pattern 1 [ú.V] > /úV/ as in púe *mouth*; Pattern 2 [u.V̂] > /uV̂/ as in pué-(kaipeide) *frown*; Pattern 3 [u.V] > /uuV/ as in (hipí)kuue *brook of the Caymita people*; Pattern 4 [úV̂] > /úV̂/ as in (rak)úé(pe) *spleen*; Pattern 5 [uV] > /uV/ as in (ïík)ue *I'm a man*.

When, however, postulated clusters of like vowels (hereafter called postulated geminates) in Pattern 3 /$V_1V_1V_2$/ are compared with the actual two-mora clusters of like vocoids discussed above (hereafter called actual geminates), various problems arise. One of the problems is that phonetically different items would be interpreted as phonemically the same. This problem shows up clearly when Interpretation A is applied to the two-mora cluster in [(hipík)u.e] /(hipík)uue/ *brook of the Caymita people*, in which a three-vowel cluster is set up whereas the occurrence of a three-mora sequence composed of an actual geminate contiguous to a single vocoid as in *(dá-k)uue *his fire log* (from [kú.u.e] /kúue/ *fire log*) would imply the identical vocoid sequence /uue/ in spite of the actual phonetic difference in timing. The form *dá-kuue *his fire log* is a potential form not as yet heard, but it is parallelled in terms of change from stressed to unstressed conditions by the following recorded actual geminates: dá móodaa *of his father*; dá-moo *his father*. The problem arises from the fact that both the actual geminates and postulated geminates may occur in unstressed positions.

To follow interpretation A to its logical conclusion, it would seem necessary to apply it to all the vocoid clusters of Pattern 3 [V.V], not just the ones mentioned above. Otherwise, clusters which are phonetically of the same timing are interpreted as of different structural patterns: [a.i] would be interpreted /aai/ but [a.e] left as /ae/. When interpretation A is applied to all these clusters, however, it would not only increase the number of postulated geminates, but would further increase the number of phonetically different items which would be interpreted as the same. A further case in point is [re.ì.ĭe] *firewood* versus [é.nï.e] *earth* which would then appear as /réïïe/ and /énïïe/.

As a minor consideration it would seem that the full application of this interpretation is not particularly economical for descriptive purposes as it multiplies vowel clusters where they are already more than generously distributed. For these reasons, Interpretation A is rejected.

2.2. Interpretation B is to consider that certain of the constituent members of the clusters occurring in Patterns 4 [V̂V̂] and 5 [VV] are semiconsonants; that is, in certain positions, i > y, u > w[7] and ï > γ.

Interpretation B is designed to take an opposite approach to that of A: whereas A led to excessive vowel clusters beyond the possibilities warranted by the phonetic data, B tries to handle many of the vocoid clusters as sequences of consonant plus

[7] It will be noted in **3.** that v is stated to have an allophone [w]. Hearers are uncertain as to whether this w and the nonsyllabic u treated here as w are the same phonetically. Some hear them alike, some differently. At times I seem to detect a definite difference. At other times they appear to sound the same. In addition, in words with initial v, the [w] allophone occurs in utterance initial, but v in word initial utterance medial. Words with initial u are heard utterance medial with a nonphonemic glottal stop preceding the u, as is the case with the other vowels. Because of the fact, therefore, that these two sounds have been heard differently on occasion, and that they act differently in distribution, they are here treated as phonemically distinct.

vowel. Interpretation B at this stage is attractive because it shows sequences constituting single moras as containing single vowels, and because by the introduction of consonants into some of the longer vocoid sequences, Witoto words look more like the type of sequences reported for many other languages.

Specifically, the purpose is accomplished by interpreting most single mora sequences as comprised of consonant plus vowel, or vowel plus consonant. As may be seen from the inventory of clusters which occur in the single mora Patterns 4 [V̆V̆] and 5 [VV] (namely, ui, ue, ua, ĭi, e, ĭa, ĭo, ĭu, ie, ia, io, iu, ĭĭ, ai, oi, ei, aĭ, oĭ, ae), all but ae contain at least one vocoid which may be interpreted as a semiconsonant. That is, one of the vocoids seems to be more prominent or stronger and the other less prominent or weaker. Specifically, e a, o are consistently stronger in these sequences than i, ĭ, u. In combinations of i, ĭ, u with each other, the first member of the cluster is consistently weaker than the second. These facts lend weight to the interpretation of i, ĭ, and u as semiconsonants y, ɣ and w.

There are a number of parallels, furthermore, between these postulated consonants and other established consonants of the language. For example, y would occur word initial, intervocalically, and before five of the six vowel phonemes. On the other hand, however, y would also occur finally, and in clusters with other consonants, positions in which it is not paralleled by nonsuspect consonants. w would have comparable distributional features to those of y, but would not occur finally, and would occur before only three of the vowels, i.e, a. ɣ would have further distributional limitations in that it would occur only word medially and finally, but would occur before vowels i, e, a, o, u, and following i, a, and o.

According to interpretation B, we would analyze the vocoid clusters of Patterns 4 [V̆V̆] and 5 [VV] (except ae) in the following manner: wi, we, wa, ɣi, ɣe, ɣa, ɣo, ɣu, ye, ya, yo, yu, yĭ, ay, oy, ey, aɣ, oɣ. These clusters would then be seen in the following examples: mwiñéga *not painted*, mwí'de *he has painted*, kwegábe *paper written on*, gwamáhĭ *a stone*, pĭvɣídĭ[8] *moon as subject*, réiɣe *firewood*, háɣɣaɣde *hard*, náɣɣo *night*, náɣɣue *many nights*, kĭráye *many ribs*, yánori *near*, goyóda *snail*, núyuenĭ *Boa people*, uyĭkĭ *parrot*, aytĭde *he runs*, eróyrapo *window*, néémey *where*, raɣpéde *he plays*, dukwípoɣga *zigzag*.

As to the case of ae, it is found to occur only in Patterns 1 [V̆.V], 2 [V.V̆], 3 [V.V], and 4 [V̆V̆]. Never does it occur in the one-mora unstressed cluster of Pattern 5 [VV] which would contrast with the two-mora unstressed cluster of Pattern 3 [V.V]. Hence it does not constitute a problem, and is treated as two vowels.

Whén, however, we investigate Interpretation B more closely, we find many grave disadvantages in it. It adds three new consonant phonemes, but does not in any way diminish the number of vowel phonemes. It sets up closed syllables and clusters of up to three consonants, whereas the normal structure of the language in nonsuspect areas is devoid of either closed syllables or consonant clusters of any size. It does not allow for any accurate prediction of syllable division in longer vocoid sequences since, for example, sequences of both ay and ya occur, and in a word such as ráuayoyakade *he always wants to hunt far away*, it is not clear whether the syllable division should be -a.yo.ya- or -ay.oy.a-. In addition, Interpretation B introduces an awkward morphophonemic interchange in certain environments where there is stress perturbation, e.g., múi'dĭkue *I will paint*, mwiñéga *not painted*. Note further that in such cases the vocoid postulated to be the semiconsonant w in certain environments receives the stress in other environments. Because of all these factors, Interpretation B is rejected.

2.3. Interpretation C is to consider that the vocoid clusters of Patterns 4 [V̆V̆] and

[8] v is used as an orthographic symbol for the bilabial fricative.

5 [VV] are phonetically unitary complex vowel phonemes whose unitary nature is symbolized by ligature.[9] Such an interpretation reduces the number of phonemic vowel clusters, and indicates clearly the vocalic quality of both constituents of one-mora vocoid clusters. It allows for more accurate symbolization of the hovering stress of Pattern 4 than does Interpretation B, in that the stress is shown to be applied to the total cluster, rather than to only the more prominent member. It accurately indicates the unitary nature of the one-mora clusters, and neatly points up the difference of timing between the two-mora clusters of Patterns 1, 2, 3 and the one-mora clusters of Patterns 4 and 5. At the same time it avoids defining syllables and indicating syllable boundaries. It might also show a parallelism between vowels and consonants, in that in both categories of sounds there are both simple and complex units.[10]

By Interpretation C, therefore, the following vocoid clusters constitute complex vowel phonemes: u̯i, u̯e, u̯a, a̯i, a̯ï, o̯i, o̯ï, i̯e, i̯a, i̯o, i̯u, ï̯ï, ï̯i, a̯e, ï̯e, ï̯a, ï̯u, e̯i. The contrastive pairs given above would now be written: /ïíkue/ [ï.í.kue] *I'm a man*, versus /hipíkue/ [hi.pi.ku.e] *brook of the Caymita people*; /tókuana/ [tó.kua.na] *he jumped*, versus /pákuana/ [pá.ku.a.na] *he is fishing*.

While Interpretation C appears at first as an efficient and simple interpretation, it is not without some complications. It adds nineteen new vowel phonemes to the inventory. Such a large inventory, namely twenty-five vowels instead of six, would in itself appear to count against this interpretation. In addition, all of these new vowel phonemes are made up of combinations of vocoids clearly identifiable with the vowels occurring in the two-mora vowel clusters. In other words, in two-mora clusters, sequences of vocoids occur which in any analysis must be treated as separate entities. In complex vowels, however, the same clear sequences occur, but because they are more rapid they are treated as units. This seems inconsistent. In addition, Interpretation C also makes necessary an awkward morphophonemic interchange similar to that previously mentioned for Interpretation B, but with an even more complicated statement. Whereas in Interpretation B there was interchange of u and w, in Interpretation C the two-mora vowel cluster ui of múi'dïkue *I will paint* and muíñede *doesn't it paint* is replaced by the complex phoneme u̯i in mú̯ga *he painted* and muiñéga *not painted*. For these reasons, Interpretation C is rejected.

2.4. Interpretation D is a composite, incorporating Interpretations A and B where considered pertinent, and considering certain clusters to occur in noncontrastive distribution which is predictable in terms of stress or timing. Interpretation D was specifically devised as an orthographic expedient, to indicate the differences of mora timing only when there is contrast involved, even though this possible orthographic value be purchased at the price of pattern consistency.

Under Interpretation D, single-mora vocoid clusters of which i, u, and ï are the initial members are analyzed according to Interpretation B, that is, as yV, wV, and ɣV. This includes ui, ue, ua, io, ia, ie, ïa, ïo, ïe, ïï, iu, ïu, ïi, which now become wi, we, wa, ye, ya, yo, ɣe, ɣa, ɣo, yï, yu, ɣu, ɣi.

The timing of certain other clusters may be predicted in terms of stress. Those which are so predicted are aï, ei, oi, oï. When these clusters occur unstressed, they have only single mora timing so that in all other situations the symbolization of pitch-stress will indicate their status—two consecutive pitch-stresses being understood to indicate single mora timing seen in Pattern 4 [V́V́], and a

[9] It will be observed that the same orthographic device is used for both Interpretations C and E. The interpretations, however, are completely different.

[10] Complex consonant phonemes are 'b, 'd, ǒ, ǰ. They are considered to be units because of the absence of other consonant clusters and because the fricative constituents of the affricates do not occur elsewhere in the language.

single pitch-stress on either member being understood to indicate that the cluster is of two mora length as seen in Patterns 1 [V́.V] and 2 [V.V́].

Two clusters remain to be handled: ae and ai. ae is always two moras unless it occurs in Pattern 4 [V̋V̋], where the symbolization of the stress would indicate the single mora pattern.

ai, however, does not fit exactly into either the CV sequences postulated or the groups which are predictable by stress or timing, since it occurs in all five patternsn. It would be possible to analyze it according to Interpretation B as VC, ay, but rather than introduce a closed syllable, it seems better to analyze it according to Interpretation A as aai when it occurs as a two-mora cluster in Pattern 3, and leave it ai otherwise.

One notes the various inconsistencies in Interpretation D: (a) the handling of some non-prominent vocoids as consonants and others as vowels, (b) the differentiation of Patterns 1–5 in some instances but not in others, (c) the handling of two-mora clusters as sometimes two vowels and sometimes three—[a.e] and [a.i], for example, are handled as /ae/ and /aai/. In addition, Interpretation D imposes quite a burden on the memory, in that the sequences aï, oi, ei, and oï are one mora when unstressed, but ae is two moras when unstressed. There are also additional clusters ao, ea, eo, and oe which never occur as single moras but do occur unstressed and hence follow the pattern of ae rather than of aï. Thus, anyone reading the language will be forced of necessity to remember which unstressed clusters are single moras (aï, oi, ei, oi) and which are two moras (ae, ao, ea, eo, oe), since the orthography is ambiguous.

Interpretation D, therefore, is rejected since it is obviously an inconsistent patchwork, involving most of the drawbacks and few of the advantages of the interpretations which enter into it.

2.5. Interpretation E is to consider the single mora clusters of Patterns 4 [V̋V̋] and 5 [VV] as complex syllable nuclei[11] comprised of close knit sequences of vowel phonemes. This interpretation avoids the multiplicity of vowel phonemes introduced by Interpretation C, and allows for the identity of the constituent vowels in the single mora sequences. It will be recalled, however, that Interpretation C was set up partly to avoid defining syllables. By Interpretation E, the definition of syllables becomes necessary. But this definition appears to be relatively simple. For Witoto, a phonemic syllable is defined as a single mora of length consisting of a nucleus of one, two, or three vowels, optionally preceded by a single consonant. This phonemic syllable is frequently constituted of a strong chest pulse with very light borders. A complex nucleus is differentiated structurally from a sequence of two or three nuclei by its timing: a complex nucleus is one mora, a sequence of nuclei is two or three moras. A complex nucleus may be differentiated orthographically from two or three separate nuclei made up of the same sequence of phonemes by a ligature under the complex nucleus.[12]

Interpretation E seems to best handle the data for the following reasons:

(a) It best reflects the actual phonetic situation with regard to timing, in that contrasts in number of moras are made clear and sequences which are considered unitary are shown to be related to higher layered structural units.[13]

(b) It gives a simple definition of Witoto syllables, whereas other interpretations do not mention them and hence do not tie into the hierarchical pyramiding of structure.

(c) It avoids the complication of further

[11] For further discussion of complex nuclei, with additional applications see K. L. Pike, Phonemics, 62, 65, 147–9, and K. L. Pike and E. V. Pike, Immediate Constituents of Mazateco Syllables, IJAL 13.78–91 (1947).

[12] See footnote 9.

[13] For a discussion of matters of higher layered units and hierarchical structure, see K. L. Pike, Language In Relation to a Unified Theory of the Structure of Human Behavior, Part II, Ch. 9 (Glendale, 1955).

enlarging the vowel clusters presented by Interpretation A, which accomplishes nothing except the arbitrary avoidance of symbolization of hierarchical layers.

(d) It avoids the postulation of consonant clusters and closed syllables which are not present in nonsuspect areas of the language.

(e) It avoids the multiplication of vowel phonemes of Interpretation C, vowel phonemes which in fact have constituents which are identical with those of other sequences and hence should be considered as phonemic sequences rather than as units.

(f) It avoids the inconsistencies of Interpretation D.

(g) It avoids the morphophonemic interchange of phonemes which was required by other solutions, leaving the morphemes with a constant phonemic shape.

(h) It clearly differentiates [V.V] from [VV] under all stress conditions.

3. The phonemic structure of Witoto, then, according to Interpretation E is as follows. The eighteen consonant phonemes are p, t, č, k, ʔ, b, d, ǰ, g, ʔb, ʔd, v, m, n, ñ, ŋ, r, h. The six vowel phonemes are i, e, a, o, u, ï. There is a complex suprasegmental phoneme of stress accompanied by high pitch.

p has a freely variant fricative allophone [ɸ] after e, a, and o. t has a fronted allophone [ṯ] contiguous to a high vowel, or word initial before e. The voiced stops b, d, and g have prenasalized allophones [ᵐb, ⁿd, ᵑg] word initially. Various degrees of hiatus[14] occur before the voiceless stops p, t, and k in word medial position. Bilabial consonants have slightly labialized allophones [pʷ, bʷ, mʷ], before ï. v has a less fricative allophone [w] utterance initially. [ᵈn] occurs in free variation with n after ï. ï has a more tense allophone [ï] word final after V, and in word medial but syllable initial position.

A nonphonemic glottal stop may occur intervocalically at word junctures in slow or deliberate speech and before vowel initial words in isolation.

Syllables are phonemic. They consist of the following types:

V é(re) *very*
CV hópo *house*
V̆V áí(jue) *large*
CV̆V kue *I*
V̆VV (háï)ïaï(de) *hard*
CV̆VV daïj(ñédïkaï) *not like we are*

Words are made up of from one to twelve syllables: da *he, she, it*; aitídoriakañedïomaïkota *you two do not always want to run away profligately at once.*

All consonants occur initial in CV syllables. Occurrences of ʔb and ŋ are restricted to word medial CV syllables. All consonants except č, ʔb, and ŋ occur initial in CV̆V syllables. No consonants occur syllable or word final. There are no consonant clusters.

All vowels occur in both V and CV syllables, word initial, medial, and final. The following combinations occur in V̆V syllables: ui, ua, ai, aï, oi, ïe, ïo, ïu, ie, ia, io, iu, iï; in CV̆V syllables: ui, ue, ua, ai, aï, oi, oï; in VVV syllables: ïaï, iaï, uai; in CVVV syllables: aïi, uai. The following examples include triple-vowel nuclei: háïïaïde *hard*, héiaï *many rats*, uaiʔídïkue *I'm staying*, daïjñédïkaï *not like we are*, tókuai *jump*. Clusters of as many as seven vowels may occur. They never constitute more than five syllables, however: (h)ʃuaioia(kade) *he always wants to chase far off*.

The permitted sequences within vowel clusters show no distinctive patterns of restriction. Of thirty-six possible clusters of two diverse vowels, thirty-two occur. The four non-occurring sequences *eu, *ou, *uï, *uo, have not been observed even in extended sequences of vowels. All vowels may occur in geminate clusters.

[14] This is not analogous to the hiatus which is an allophone of the glottal stop phoneme found in Motilone and described by Leonard C. Hanes, Phonemes of Motilone (Carib), IJAL 18.146 (1952); rather, it is a characteristic of the voiceless stops themselves in this position.

ISLAND-CARIB MORPHOLOGY III: LOCATORS AND PARTICLES[1]

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DOMINICA, BRITISH WEST INDIES

13. Locators
14. Comparison of particles and nouns
15. Verbal particles
16. Other particles
17. Alternation

13. The small, closed, but important class of locators, whose composition is set forth in Table I, consists of a number of derived primary words, each of which contains a simple or a complex theme and one 'primary' suffix. The suffixes -gVta (403) and -gVra (404) appear to be complex, but I have not been able to analyse them. Themes are here divided into four sets in order to show with which suffixes they may combine—with any one of the 'primary' suffixes, that is, under which an x is marked opposite the set in question. Some locators formed from themes of sets 1 and 3 may be modified in meaning by the addition of a secondary suffix as shown in the table. Since it is clear that locators belonging to sets 1–3 constitute a tightly knit subclass, having little in common with those belonging to set 4 except the status of derived primary words, they will be discussed separately.

13.1. Locators having a theme listed under 1–3, and containing one of the suffixes -Ha, -ra, -gVta, -gVra, may be divided into 'pure' locators (those with the theme ia)-, and 'pronomial' or 'mixed' locators (the others); and the latter may be further subdivided according to whether they have a simple pronominal theme (set 2), or a complex predicative-pronominal theme consisting of the root-morpheme N- together with one of the person-marker suffixes (set 3).

As was stated under section **4**, the suffix -Ha is reduced to zero after ia- or ha- except in ceremonial speech, or when, with the former theme, it is followed by the directional suffix -ų *to* (in which case it is retained as -ha); while—again except in ceremonial speech—it fuses with the themes li- and tu- to form léa and tóa respectively. Themes of set 3, anná-, abú-, iní-, inú-, ąuá-, onó-, and aniá-, clearly contain the person-marker suffixes, 101–107, together with a predicative root, here called N-, whose identity is less clear; cf. -ani *possession*, ani- *do, handle, take possession of*, or, perhaps, éni ∼ en of the Dominican dialect, whose meaning is that of French *voici, voilà*. See now what is said about these alternations under sections **2.22.34** and **3.2** of my article, 'Phonemes of the Hopkins (British Honduras) Dialect of Island Carib', in IJAL 21.233 (1955).

The four pure locators, iá(ha) *here*, iára *there*, iágota *over there*, and iagóra *away yonder* may take one of the directional suffixes, -ų *to* (341) or -gię *from* (342), as in iáhaų *hither*, iágię *hence*.

Of the simple pronominal themes, only those denoting the third person (set 2b, li- *masculine singular*, tu- *feminine singular*, ha- *common animate plural*) take strictly locational suffixes: léa *he here*, or *this*; líra *he there*, or *that*; ligita *he or that over there*; ligíra *he or that away yonder*; tóa *she here*, or *this*; (túra, túguta, tugúra); ha *they here*, or *these*; (hára, hágota, hagóra); these words functioning syntactically either as pronouns, or as determinants placed after the noun. Locators formed from the same themes by means of the suffix -te (405) indicate the referent's approach (toward the speaker), as in líte *he coming*, or *this coming*. It should be noted that the locators ligíra, tugúra and líte, túte are often employed in reference, respectively, to past and future time, as well as to distance and approach in space. As in the case of most nouns other than

[1] For Island Carib II see IJAL 22.1–44.

TABLE I

Themes	Suffixes									
	Primary							Secondary		
	-g(u)ia	-Ha	-ra	-gVta	-gVra	-te	-101–107	-ų	-gię	-į
1. ia-	–	x	x	x	x	–	–	x	x	–
2a. nu-, ua-; bu-, hu-;	x	–	–	–	–	–	–	–	–	–
2b. li-, tu-, ha-	x	x	x	x	x	x	–	–	–	–
3. N- + 101–107-	–	x	x	x	x	x	–	–	–	x
4. hagá-, higá-, áhą-, káta-	–	–	–	–	–	–	x	–	–	–

those denoting concrete objects or beings, time is referred to as feminine by the men and as masculine by the women, even when the nominal referent (dą *time*, borrowed from Fr. temps) is not expressed, but implicit; hence the phrases (men's) tugúra búga or (women's) ligíra búga, meaning *the other day—some time ago*, but literally *yon past*, and (men's) túte me or (women's) líte me, meaning *soon—shortly—in a few days*, in which the locator's reference to time rather than space is made clear by the following tense-particle, búga *past* or me *future*. The suffix -g(u)ia (406) occurs with all seven of the simple pronominal themes; nugúia *as for me*, or *it is I*; bugúia; ligía; tugúia; uagía; hugúia; hagía. Also these words may function syntactically as independent pronouns, or, in the case of those denoting third person, as modifiers. Moreover, as sentence-initial (or clause-initial) they are predicative, and as such are followed by a verbal noun rather than by a verb, as in ligía lerégų *it-is-this/then his-saying*, that is, *this is what he said*, or *then he said*.

Locators formed on themes of set 3—unlike those with simple pronominal themes and the suffix -g(u)ia—are always predicative; and even those themes whose pronominal reference is to first or second person may take strictly locational suffixes. So, for example, annágora *yonder I am* was recorded in the following sentence of a letter from a Black Carib woman to her son: áhana míderagų bá, bagąbuba nuágu *soon* (English) luágu annágora lą gumúgua *if thou dost not help me, thou'lt soon hear about me that there* (lit. *yonder*) *I am at an end* (i.e. *dead*). Other examples of this type of locator will be found at the end of section **3.2.** The non-demonstrative, secondary suffix -į (411) is added only to locators in -Ha or -ra which have third-person pronominal reference, as in iníraį *there is or there are* (some object or objects of masculine gender), or *he is there* (*non-demonstrative*), in contradistinction to iníra *he/it is there* (*demonstrative*). Predicative-pronominal locators in -te (405) are usually followed by the nominal referent, and are probably restricted to third-person reference; so, iníte ábą muládu *a 'Spaniard'* (*Spanish speaker*) *is coming*, inúte ábą guríara *a* (*dugout*) *canoe is coming*, aniáte órua iráhǫią *three children are coming*.

13.2. The remaining locators are all characterized by containing, together with a bound theme, a person-marker suffix as word-final. Those formed on the theme hagá- *where is/are* are always interrogative, as in hagái *where is he?* hagáų *where is she?* hagáią *where are they?* They are followed by the nominal referent whenever this is not clear from the general situation or context, as in hagáią barónegu *where are thy captains?* With a second-person suffix, the meaning of hagá- is usually changed to that of a greeting, as in hagábu sa numáda *how goes it, my friend?* (rather than *where art thou?*). My informants found this last question to be rather ludicrous, ('if you don't know where I am, how can you speak to me?'); but when I explained its use, they 'supposed' that hagábu might be employed with this meaning in situations such as I had described.

The theme higá- is injunctive *come*, as in higábu *come (thou)!* It has an irreguplural, higáugu *come (ye)*, which may or may not contain the collective suffix -gu (322). It seems to be rarely employed with third person reference; although I have recorded higái *let him come* in the sentence higái bába lų laríhini nugúdeme *let-him-come papa it-for his-seeing-it my-misery*, that is, *may Papa come that he may see my misfortune.*

In the older Dominican dialect recorded by Breton, both the foregoing themes were phonemically aká-, and may therefore have belonged to the same morpheme. They were distinguished from that to be described in the following paragraph, áka- in this older dialect, only by stress.

The theme áhą- is translatable, according to context, by *if*, *then*, or (non-interrogative) *when*. To it is suffixed a person marker referring to the subject or to the object of the following predication—to the latter in the case of phrases that give expression to both. So, (náibuga adíaha); áhana adíga, (níciguba ábą bų́) (*I'm going fishing*); *if I catch*, (*I'll give one to thee*); but áhana barída *if-me thou-see—if thou seest me*, áhąbu naríha *if-thee I-see—if I see thee*, áhaį hamúga-tia erégatibu tų́ *if-it would-be thou-toldest to-her—if thou hadst told it to her*. Examples of contexts in which this theme is translatable by *then* or *when* are: (káiburi bía háti láugeę) áhaį híla urúei (*about two months after that*) *then-he died king*—that is, *it was about . . . when the king died*; (káiburi ábą dimásu lárigię) áhaų híla túgucu (*it was about a week later*) *when-she die her mother—when her mother died*, or . . . , áhaų buį . . . , *when-she (got) full*—that is, *pregnant*. The exact force of phrases beginning with one of these locators in áhą- may depend on a following verbal particle; so, áhaį-tia naríha *if I (should) see him*, áhaį-ti naríha *when I see him*, áhaį-ga naríha *when I do see him*, áhaį sa naríha *in case I see him*; the same particle usually being repeated after the verb of the principal clause.

The meaning of the theme káta- is *who or what is or are*; kátaią bagóburigubáią *who-are-they who-are-thy-parents?* narúfudubái kátanaiądina lą́ *I'll show who it is that I am* (see section **1**); kátai gía *what is it?* or *what's the matter?* However, in addition to their interrogative function, kátai *who or what is he or it?* and kátaų *who or what is she or it?* also serve as syntactic nouns meaning *thing*. So, for example, ábą kátai ítara *such a thing*, but literally *a what's-it such*; kátai léa *this-masc. thing*; kátaų tóa *this-fem. thing* (and also a euphemism for the male organ, which is feminine). The theme káta- is moreover exceptional in that, itself bound, it now contains as free underlying form the particle ka *who or what*, nowhere attested in Breton's and Rat's records of the older and more recent stages of the Dominican dialect.

14. Particles, like nouns, may be simple, complex or compound; but unlike some nouns (see **11**), all complex particles contain an underlying free form—which may be phrasally bound, however. Borrowed forms, to whatever class their models belong, are taken over as particles or nouns, most of which can be converted by appropriate affixation into verbs (which are never simple). For example, from Fr. apprendre comes the particle furędе *erudite*, verbalized as afurędera *to learn*; from Fr. senti(r) the particle sądi *sick*, nominalized as (t)isądi (*her*) *sickness*, and verbalized as asądira *to get sick*; from the French phrase bon jour comes the particle búsu *greeting*, verbalized as abúsura *to greet*; from Eng. thank thee, the particle tégi *thanks*, whence the verb etégira *to thank*; and from Fr. clé comes the noun gelę́ *key*, whence the verb egelęca *to lock*. Particles as such cannot be marked for possession, person, number, location or direction; although they can take certain derivational affixes that are also compatible with other form-classes, some members of which may themselves be converted into particles. So, particles derived from other particles may be exemplified by causative buígoda *filled*, from buí *full*, and privative máhą *unwilling*, from áhą *yes*, or *willing*; while the last of these

forms the base of the indefinite verb ą́hara *to agree*, which itself underlies the particle máharadi *unable or not disposed to agree*. This form-class, which is defined only negatively (see **2**), contains several subclasses whose functions differ considerably.

15. What I have called verbal particles are such as function syntactically like verbs. They fall into several small groups, and are, except for a handful, phrasally bound though morphologically free forms whose import is grammatical rather than lexical—somewhat after the manner of the auxiliary verbs. None can be converted into an indefinite verb, and all but three appear to be incompatible with any affix whatsoever.

15.1. The meanings of the particles tía, ti, gía, gi, sa, ga, and rái are usually carried, in English, by context, emphasis, intonation, word-order, by the copula *be* or by the auxiliary *do*. Unlike the latter, however, they are not grammatical requisites, but help rather to make certain utterances more explicit; and they occur, like the prepositions of Latin, much more frequently in familiar speech than in stories, songs, or ritual. The resemblance of gi and ti to the durative (204) and aorist (205) aspect markers is striking; and as the former are usually enclitic, it is sometimes hard to distinguish the particle ti from the homophonous verbal suffix, 205 + 103. That they actually are independent is shown by the fact that this particle may follow an aorist verb in -ti, as in ióbuiti tí? *did he come?* saniáti-ti *it is impossible*, hanúfudetína-ti *I'm afraid*, dísetiuá-ti *we're far away*, and that ti may occur between a noun and a plural modifier, as in mútu-ti ha (gadógattių lų́ gué-lèa) *these people* (*can make it nowadays*).

From an examination of many utterances containing them, I conclude that the difference between tía and ti or gía and gi is on a par with that between English *is* and *'s*, or between the auxiliary and the main verb in *how d'ye do?* So, one hears uttered in the same situations and with equal frequency: terégа tía or terégа-ti, both meaning *she said*, báiba tía or báiba-ti, both meaning *go away* (imperative); and I was told that the longer forms differ from the shorter only in that they are slightly more emphatic. In some instances, on the other hand, the choice seems to be determined by environment (including stress), as in the case of kátai gía? *what is it?* (or *what can it be?*) versus hagái-gi? *where is he/it?* It should be noted, however, that tía is rarely interrogative, and gi almost always so (the only other position in which I have heard it being in the protasis of a conditional sentence); although tía is as common in the command construction as in statements and conditional sentences, and ti and gía occur in all types of sentence. But while the difference between tía and ti or gía and gi is probably no more than stylistic, that between the former and the latter pairs may correspond to a considerable difference in meaning, and therefore merits closer scrutiny.

For example, though possible in certain situations and general contexts as an utterance, ída lį́ą? *how is he/it?* is most often followed by one of the particles, ti, gi, or sa; and in many cases a nominal subject must be added to complete the question. But even without the latter, meaning largely depends upon which of these three particles is employed, although the difference can be shown in English only by paraphrase. So, to the question ída lią́-ti? *what is he/it like?* one might expect such answers as 'tall' or 'short,' 'black' or 'white', 'wooden', 'with long sleeves and a low neck'; while ída lią́-gi? *how is he/it?* might elicit such replies as 'well' or 'ill' (of health), 'fine' or 'stormy' (of the weather); and ída lį́ą sá? *how about him/it?* calls for an explanation or for news. Analogously with the difference between the verbs halíaiaų and halíatu, as described under **7.1**, one usually says: hagáų-ti túbą N? *where is N's house?* but hagáų-gi túgucu N? *where is N's mother?* (unless it be wished to imply that her house is mobile, or her mother a fixture). Kátai? *who is he?* or *what*

is it? refers to a definite (and usually present) being or thing, while kátai gía? may mean rather *what can it be?* or *what do you want?* Let us consider the following questions: ká líri? *what (is) his/its name?* ká sá líabai? *what is-it that-be-its-contents?*—that is, *what does it contain?* or *what does it mean?* ká gía áura? *what is (the) time?* According to my informants, the first requires neither verb nor particle because name and being or object named are inseparable. The second, containing the particle sa followed by a denominal subordinate (imperfective) verb, from líla *his/its contents*, refers to an 'alienable' association, and is analogous to ká sá lifísiutebai *what is his job?* (lifísiute *his job*, físiu *job* being a loan from Sp. oficio), and to ká sá lúmaribaų? *who is his wife?* (lúmari *his wife*—literally, *his consort*). In the third question, the borrowed noun áura *hour or time* is preceded by the particle gía because the reference is to a phase rather than to an association,—as also in ká gía uágu? *why?* or *what for?* (with uágu *upon or about*). This latter phrase may be contrasted with ká sá uágu? *what is it about?* In context, the first is usually followed by a subordinate (imperfective) verb, the second by a verbal noun; so, ká gia uágu ru bubáli niéį? *why didst thou put it there?* but ká sá uágu bébecų L lúma G ligíra búga? *about what wert thou criticizing L to* (lit. *with him*) *G the other day* (lit. *yon past time*)?

Grounds for the distinction are less clear in some cases; kába-ti uágu nasámina? (*what-will-be* ti *about I-reflect indefinite*), with ti, is a rhetorical question meaning *what have I to reflect about?* (with the implication, *nothing*); but kába gía uadóga? (*what-will-be* gía *we-do-indefinite*), with gía, is a straightforward question meaning *what are we going to do?* Either ti or gi may be employed in halíaų-ti/-gi lídi búguci? *whither is thy father going?* but informants say that the two are not exactly equivalent, that with ti referring to place of destination (*to what place?*), and that with gi to time and direction of going. The phrase ítara lią-ti *it is thus*, or *it so happened*, contrasts with ítara lubái-gia *it will be thus*, or *it will so happen*, in the choice of a particle following the different auxiliaries. In some Island-Carib-speaking communities, the imperative phrase ítara lá *so be it* takes the place of *Amen* at the end of church prayers. According to one informant, this formula sounds vague or incomplete (rather than incorrect); for, as he explained, changing the person to 2nd singular, one may say either ítara bá-tia *be like that* (*if you want*), or ítara bá-gia *become*—or *try to be—like that*, which is another matter. The command construction meaning *give it to her* occurs with either or neither of the particles tía or gía; but whereas rú-bai tía tų́ means, roughly, *better go and give it to her*, rú-bai gía tų́ may be rendered *go ahead and give it to her now*. In answer to a question concerning the colour of something, one might say funáti tia *it is red*; but if then somebody objected: ká gía uágu berę́gubai luágu funá lá? *why do you say about it that it's red?* one might respond: funáti gía (*because*) *it IS red*. The habilitative verb gáfaraháti means, literally, *he is capable of killing extensively*, and is to be analysed as: 21 + áfara *to kill* + 301 + 214 + 205 + 103, {gA-[(áfara)-ha]-DI}-tI-i; but the construction gáfaraháti tía means very much the same as *he is a killer*, whereas gáfaraháti gía means rather *he does kill* (emphatic).

The particles tía and gía rarely—and ti and gi never—take any affix. Occasionally, however, I have recorded the first of these with the perfective aspect-marker, -HA (203), as in: terę́ga tíaha: "namúlenų, náueba tía" *she said* tíaha: "*my juniors, I shall die* tía". Similarly, it would seem that gía can take the aorist aspect-marker, -tI (205), as in úati giáti *there's nothing* (*amiss*), which is the usual conventional response to the conventional greeting, ída biá-gi? *how art thou?* (equivalent to our *how d'ye do?*). Since variations of this response include: úati giáraoti, with the diminutive suffix -rao (353), and úati giáti tia, with the particle added, it does not seem possible to regard

the /ti/ of giáti in this phrase as anything but the verbal and verbalizing suffix -ti (205 + 103).

Nevertheless, it is by no means certain that tia and gia are incompatible with one another, or either of them with sa, in the same phrase. The form gię, which in some contexts means *also*, is found together with tia or sa in others where it appears to be a variant of gia. Examples: lóha gié-tia marihį nánų T (*long-time-perfective* gię-tia *without-seeing I-being-her T*) *it's been a long time since I've seen T*, ámuti gié-tia uoríbu (*it-is-odd* gię-tia *brawl*) *it's an odd thing squabbling*, iníhaį gié-tia lanáimauga iá (*there-it-is* gię-tia *its-general-violence here*) *it's getting rough here*, iníhaį-tia gíę táiginibu kátaų tòa, mábaigua bagóleru (*there-it-is* tia gię *its-biting-thee thing this, dry-stative in-thy-throat*) *it so happens that when this thing bites thee, thy throat gets dry*, hagái-gię sá tąuáiri? (*where-is-he* gię sa *her-old-man*) *where's her 'old man'* (*husband*)*?* lanáime sá-gia léserų (*its-violence* sa gia *its-downpour*) *it must have been a violent downpour!* In this last example, gía appears to have exactly the same function as gié in the preceding utterances; and I conclude tentatively that they are variants of the same morpheme, meaning *be, etc.*, as well as *also*; (both meanings were represented by kia in the Dominican dialect).

The particle sa is interrogative in most (but not all) contexts: gálati sá ságaų? *does it contain sand?* (21 + -íla ~ ílao *contents* = gála *having contents* + 205 + 103 = gálati *it contains*), aríha lumúti sá náti laborehą? *does my brother see what he's writing?* ída uabá-sa lúma sábų? (*how we-shall-be* sa *with-it soap*) *how shall we be off for soap?* ída lį́ą sá ladógǫ? (*how is-it* sa *its-making*) *how is it made?* miábihali sa? (*not-coming-perfective-he* sa) *isn't he coming any more?* gadí-bią sá? (*what-amiss art-thou* sa) *what's the matter with thee?* á-me sa uáigą barúru? (*what-about future* sa *our-food plantain*) *what are we to do about our plantains (to eat)?* á-sà! (exclamatory; denotes perplexity or annoyance). In contexts where it is not interrogative, sa seems to be explanatory (in statements) or dubitive (in conditional sentences); so: láu sá gudéme lèa (*about-it* sa *distress this*) *it's on account of this distress*, marítagutibu sá nuágu (*not-remembering-art-thou* sa *about-me*) *it's because thou dost not remember me*, áhaį sa naríha, kabá-gi/-sa narę́ga lú? (*if-him* sa *I-see-indefinite, what-shall* gi/sa *I-say-indefinite to-him*) *in case I see him, what shall I tell him?* This last example may be compared with áhaį tia naríha, nerę́gubai tía lú *if/when I see him, I'll tell him* (*of*) *it*, and with áhaį ga naríha, nerę́gubai (ga) lú *if I do see him, I'll* (*certainly*) *tell him* (*of*) *it*. What appears to be an archaic variant of sa, sára, occurs in songs, but I have no record of sa with any productive or even isolatable affix of any sort.

The particle ga is emphatic, somewhat after the manner of our auxiliary *do*, and often explanatory at the same time. Sometimes it may be rendered in English by *any way, nevertheless, since*, or *because*; a privative participle followed by ga is usually to be translated by an adverbial phrase in *without*, as in (*he can't see*) *without touching*; elsewhere ga may be equivalent to our auxiliary *do*, or untranslatable. Examples: siá la sá haríhį mútu magúru-ga (*impossible it-be-conjunctive* sa *their-seeing people not-touching* ga) *it seems that people can't see without touching*, siá lubái-gia háibuga mútu iá H, madáhiha ga lą́ią damánasi (*impossible it-will-be* gia *they-walk people here* (*in*) *H, not-catching-on* ga *it-be-them burrs*) *it will be impossible for people to walk about here* (*in*) *H without burrs catching on to them*, sąditi animálu lèa, peru láiga ga (*it-be-sick animal this, but he-eat-indefinite* ga) *the beast was sick, but he ate it nevertheless*, haiábiburi mútu niéigię cugúru-ga hágurugu (*their-coming-multiple people thence hollowed-out* ga *in-their-eyes*) *people used to come from there hollow-eyed*, uél, máma-ga lúgucu *well, it was not his mother any way*, gágugilí-tia, maiúsugíli-ga spéko (*he-still-has-eyes* tia, *he-is-still-without-using* ga *spectacles*) *he still has* (*good*) *eyes, since he doesn't yet use spectacles.* Or, in

answer to the question 'why didn't you write to me', náfaiarųią gá *because I was travelling*; and in answer to the question, 'why don't you do this', nadógią gá *I do do (it)*. So also, ída lį̨ą sá, náua, maiábitibu? *how is it, I called, you didn't come?* answered by: náigią bugá-ga *because I was eating*. This particle can take no affix.

Finally, rái expresses surprised interrogation; gerę́gatti rái lų garífuna? (*he-be-capable-of-speaking* rái *to/for-it Island-Carib*) *does he really speak Island-Carib?!*

It is clear that the particles described above may be avoided, in many instances, without much loss of meaning; for, in such a complex sentence as: áhaį nisínu lubái, úatu kátaų tuágu; péru áhaį-tia higímuga lubái, láfuacubá-tia *if it be my destiny, there's nothing (to be said) about it; but if it should be envy, it will show up* (lit. *emerge*), there seem to be only stylistic reasons for the two occurrences of tia in the second half of the sentence, and the absence of such a particle in the first half. Nevertheless, they are decidedly functional in some cases, as has been seen; and they play an important rôle in idiomatic colloquial speech, for a good understanding of which their further study is, I believe, important and requisite.

15.2. Another group of verbal particles contains negative or privative ma and máma, quotative nége, and what for want of a better name may be called the past, future, and contemporaneous tense markers, búga, me, and iébe.

The particle ma (with which compare the prefix 22, mA-) is most frequently employed in negative questions to which a positive answer is expected. For example, má sá tugúia lúmaribaų R? (*isn't it-is she fem.-who-be-his-consort R*) *isn't it she who is R's wife?* má-buga nią́-bų? (*don't past I-say to-thee*) *didn't I tell thee?* In this function ma is occasionally replaced by máma. But ma may also be employed with exclamatory force; lubuídų barána ma! (*its-beauty sea* ma) *how beautiful the sea is, isn't it!* In negative statements máma is almost always used, as in máma-tia náhurarųią búma (*is-not* tia *I-am-playing with-thee*) *I'm not playing with thee*, máma mútu buídutu (*is-not person she-is-good*) *she's not a good person*, as also, sometimes, in questions; so, máma-sa bidúhęiu, bía eiérių há? *aren't they thy kinsmen, these two men?* Unlike ma, máma, which appears to consist of mA- (22) + -úma *with*, can be converted into an aspectual verb (at least in the aorist), as in mámatių grígia búmari tábu bímenodi *they are not human beings thy wife along with thy mother-in-law.*

The quotative particle, nége, may be translated by, *he said, they say, it is said, it appears, etc.*, or, most often, left untranslated. Today it is a simplę form without relationship to any other word or stem in the language; although etymologically it contains a Cariban marker of 3rd person, n-, and a root, -eka- *tell*. This particle is always included in any statement for which the speaker cannot vouch personally. Examples: lerę́ga nége tų́ luágu láunahą nége gárada lų́ (*he-tell-indefinite quotative to-her about-it his-sending quotative letter to-him*) *it seems he told her he would send him a letter*, dą́ le me nége lalíhanų larítagubá-nege tuágu (*time when future quotative his-reading-it he-future-remember quotative about-her*) (*and that*) *when he read it he would remember her*, ábą nége ladógonų (*and quotative his-making-it*) *and so, they say, he wrote it*, ligía nége lerę́gų: "ká gia nadógobaų iá?" (*it-is-then quotative his-saying "what be that-I-do here"*) *then, they say, he said: "what am I doing here?"* áfara lumútu negé-gię (*beat he-do-her quotative too*) *it seems that he beat her too*, nagą́ba abúhaį nége Séni Báidi (*I-hear-indefinite te-voilà quotative S B*) *I hear that you were at Seine Bight.* As appears from this last example, the quotative particle is now included even in statements where the context makes it otherwise clear that they are based on hearsay, and is therefore of quite a different order from such English qualifications as may be used to translate it.

The particle búga always indicates past tense, while me and iébe usually indicate,

respectively, futurity and contemporaneity. Compare: tįurahą́ią ganáli *she (is) raising (the) pitcher*, tįurahą́ią buga ganáli *she was raising (the) pitcher*, tįurahą́ią me ganáli *she will be raising (the) pitcher*, and tįurahą́ią iebe ganáli *as/while she (is, was, or will be,* according to context) *raising (the) pitcher*. Further examples of the use of búga are: máma funá bugá-tia sę́su bícigubái nų urínauga (*isn't can-be past* tia *money that-be-thy-giving to-me yesterday*) *it couldn't have been money that you gave me yesterday*, marí-higidína búga mútu ítara (*without-seeing-still-be-I past people such*) *I had not yet seen such people*, máigigią negé-buga (*without-eating-still-be-they quotative past*) *it appears they had not yet eatén*, guríara tugúra,—bináro búga tásogora (*dugout-canoe yon-fem., long-ago past she-pass-by-indefinite*) *yon canoe,—it's long ago that she passed by*, gudáti bugá-tia náiahą (*burnt-be-it past* tia *my-baking*) *my batch was burnt*, ligía buga náfagubái (*it-be-therefore past that-be-my-striving*) *it was for that that I strove.*

What may be called the future-tense function of the particle me is usually clear even in those cases where English does not employ a *shall*-or-*will* construction. For example, erę́ga nau mé tia lú (*tell I-conjunctive-it* me tia *to-him*) *I might tell him of it*, áhaį me asádira (*if-he* me *get-sick*) *if he were to get sick*, ída-me ladárų cápa (*when* me *its-opening shop*) *when the shop opens*, darí me dą́ le hiládina (*until* me *time when I-have-died*) *until after I am dead.* However, transition from one time or state to another, and not futurity, may also be indicated by me, as in: sú dóbu lèa-buga niéįbai salígua hárigaų grígia mé (*all stone this past that-be-there transformed back-to-them human-being* me) *all these stones there were turned back into people*, iníhaį mé-tia táiginibu íliba (*there-it-is* me tia *its-biting-thee centipede*) *there comes a time when a centipede bites you* (a fatalistic opinion not concurred in by all hearers). It is therefore not surprising to find out that there is a perfective counterpart of me, méha, which indicates, as búga does not, that conditions have changed since the time spoken of; so, nugúia mehá-tia lèa tabúgubai búgucu (*it-is-I* meha tia *he who-be-her-chasing-away thy-mother*) *it was I whom thy mother chased away*, rísiharú-tia iráho tòa méha babúgubaų iágię (*rich-has-become-she* tia *child this* meha *who-fem.-be-thy-chasing-away hence*) *the girl whom thou drovest away from here has become rich.*

The particle of contemporaneity, iébe, may be employed in an equational sentence such as: liráo-iebe gía Henáru tiráo Berta? (*his-child* iebe gia *G her-child B*) *is Berta's child also* (i.e., *at the same time*) *Genaro's child?* as well as in one which describes two acts or processes as contemporaneous, like: lubáti larúgą bináfi, náibuga iébe Dągrígo, iú niá-ti béiabu, ligía tiábi iráho tòa, terégа . . . (*it-be-before-it its-dawn morning, I-go-indefinite D, sitting I-am* ti *landing-at, it-is-then her-coming child fem.-this, she-say-indefinite . . .*) *it was before dawn, as I was about to go to Stann Creek and was sitting at the landing-place, when this girl came and said* . . . But iébe also occurs in contexts where English employs one of the adverbs *just* or *even* to express incompleteness or to invite comparison, as in: inúha bítu tòa Frąseska auąseru iébe lídą teleskuélehą, peru . . . (*here-she-is thy-sister fem.-this F advancing* iebe *in-it her-schooling, but . . .*) *here's thy sister Francesca just getting on in her schooling, but . . .*; or: ábą-iebe caparíta agólei tadóguba tisábute (*one* iebe *gill oil it-will-make its-soap*) *even one gill of oil will make soap.*

15.3. A very few particles are the semantic, as well as syntactic, equivalents of independent verbs. Such are: ɬhi (*I*) *don't know*, hígа *you hear* (in calling attention), be! *look!* (presumably borrowed from Sp. ve), áho (ié)! *come (here)!*—which is confined to the men's speech, and is equivalent to the locator higábu (iá) in that of the women (v. under **13** above). Also, if I am right in believing them to be unanalysable at the present time, kabási *it may be* (from earlier kasíba), and káimą *it seems as if*

(probably from earlier akái-hamą *if it were*, or *if he had said*, which became a set phrase). These are employed as in: kabási lų miábihali lą́ *it may be that he's not coming*, káimątia láueba *it seems as if he were going to die*. Although homophonous with the latter particle, and also unanalysable today, káimą *let's go* is not a particle, but a first person plural imperative verb because it is suppletive in the paradigm of the imperative verb-theme -áiba *go* (v. last paragraph under section **6**). Verbal particles of the type described here cannot, so far as I know, take affixes of any sort.

16. Most particles of this language behave syntactically like adjectives, adverbs, or pronouns, or combine the first with one of the latter functions; but very few 'adjectives' can take the place of attribute in a nominal phrase without conversion into verbs by the addition of an aorist—or, more rarely, a perfective—suffix. So, for example, buídu *good* and uríba *bad* occur, as particles, only in conjunction with an auxiliary or other verb, as in: buídu lá *let him/it be good* (imperative), dą́ le buídu lą́ dą́ tų *when (the) weather is fine for her* (or, *when she's in a good mood*), áhaį uríba lubái bigáburi *if thy conduct be bad*, máma uadímurehą́ią uríba tuágu hįáru uáladi (*is-not we-are-talking bad about-her woman our-like*) *it's not that we're speaking ill of a woman like ourselves*. To form the attribute of a nominal phrase, an adjectival particle such as these must be converted into an aorist verb, and this placed after the phrase's constitutive member. So, uríbatu *she is bad* is an attribute in ábą áufuri uríbatu *a bad aunt*, but the predicate of uríbatu ábą áufuri *an aunt is bad*. Exceptionally, ítara *such*, or *so* (*thus*), occurs in this position as an attribute without verbalization, as in ábą kátai ítara *such a thing*.

Some numeratives (including all numerals) and a handful of other particles function as attributes when placed BEFORE the head of a nominal phrase; such are: ábą *one, a, same, and*; ábaia *another or the other*; ámu *other* (*distinct in kind*), *odd* (*strange*); binádo *old* (in the sense of *former* only); iséri *new*; ka *what*; káisi, kái *like, as*; sų *every, all*; ni *no-not a* . . . Examples: órua uéiu bía áriabu táu luágu mábu *three day(s and) two night(s passed) over her upon (the) journey* (uéiu means *sun* as well as *day*), ábą uéiu lídageę sų́ uéiu *a day out of all days*, ábaia lúmari búguci *thy father's other wife*, ká ámu uogóri hanícigubái luái? *what other man is wiser than he?* (lit. *who have wisdom beyond him*), binádo hábią (*former their-home*) *their old home*, iséri urúei (*the*) *new king*, amóro káisi hú—sų́ buáuguaų *thou (art) like (a) hoe—everything toward thyself*, sų́ uogóri *every man*, sųgubai uogórią *all (the) men*, sų́ lídiburi *all his hair*, sų́ ubáu *all (the) world*, ní káta *nothing*, ní mútu *nobody*, ní halía *nowhere*, ní tífe (*no her-scrap*) *not a scrap of it*; (ni is not employed before dą *time or weather*, *never* being expressed by úati dą́ *there/it is no time*). The particles binádo and ni apparently occur only in the position before nouns —that is, as attributes. Nevertheless, it is evident from the last two examples, in which one noun (halia *where*) retains the aspirate (compare mA- + halia + -ų = maliaų *no whither*), and the other is possessed by the person-marker t- *her or its*, that ni, although phrasally bound, cannot be considered as a prefix. Although the forms káisi and kái are said to be 'the same word', the former variant—if that is what it is—was heard only as an attribute in nominal phrases, the latter in verbal phrases such as: kái lái nége madógo lane hábią *since apparently he doesn't do it (at) their home*, kái lái *inasmuch as* being a set phrase, kái lubái-ti *the way he is*, kái tubái-tia *the way she is*, . . . , and also as the stem of derivatives, as in káiburi (bíauéį) *about (forty yards)*.

Verbal phrases consisting of an auxiliary verb (as constitutive member) preceded by a complement may have, as this complement, an infinitive indefinite verb without free base, or a particle which may or may not also function as the base of an indefinite

verb. So, with the indefinite verbs aríha *to see or to look at*, áfura *to blow or to blow on*, ásura *to finish*, the first a primary word, the other two being secondary, we get such verbal phrases as: aríha báų (kátaų túra) *look at it/her* (*fem.-that thing*), whose complement is itself a verb, fú-baų (kátaų túra) *blow* (*on*) *it* (*fem.-that thing*), and sų́-baų (kátaų túra) *finish it* (*fem.-that thing*), whose complements are the particles fu and sų (meaning, in other contexts, *every or all*). So, also, rú-baų (kátaų túra nų) *give it* (*fem.-that thing to me*), whose complement, the particle ru *give or put*, enters into no indefinite verb, although it may be converted, like most words of this language, into such aspectual verbs as rútių *they put/gave*, rúhali *he has put/given*. Moreover, háu *eat* and gurá *drink* would have to be classed as particles were it not that they are suppletive, in some contexts, to the indefinite verbs áiga *to eat* and áta *to drink*. Nor can such a form as ru *put or give* be regarded as a verbal particle, even though it occurs only in verbal phrases; for the predicative character of these phrases is determined entirely by the auxiliary verb which is their constitutive member.

This is all the more true of forms such as mábuiga *greeting*—as in: mábuiga nią́-bų (*greeting I-say to-thee*) *I send/give thee greetings*—and uísą *farewell*, which may be converted into indefinite verbs, amábuigara *to greet*, auísąha *to take leave of*—as in: nauísąhabu láu náibuga lą́ *I take leave of thee on my departure*. Unanalysable today, these particles are etymologically complex; the first containing a Cariban 2nd person prefix, m-, and an interrogative suffix, originally -ka, together with a stem that has also given modern (n)ióbui *coming*; so that this was once the 'men's' equivalent of the 'women's' (now general) greeting, colóhadibu? *art thou come?*—a finite perfective verb.

Many particles fulfil more than one syntactic function, as in the case of darí in darí-baų *find her* (imperative), or darí náru *I've found her*, and darí harúga *until tomorrow*, or darí Alų́du *to* (*as far as*) *England*—equated, as in some West Indian islands, with *London*; while this same particle forms the base of two indefinite verbs, adáira *to find* (with dissimilatory loss of r before the suffix -ra), and adáriha *to woo*. So also, as we have seen, ítara may be used as an adjective meaning *such*, or as an adverb meaning *so* (*thus*); while ka *who or what* has, with the latter meaning, both adjectival and pronominal functions. To be distinguished from the latter is the particle ą, which, unlike ka, is always interrogative or exclamatory, and occurs only in sentence-initial before sa or tia with such meanings as *what about it? what is there to do about . . . ?* or *what is the news about . . . ?* as in: ą́ sá iséri gríuių ha iárabaią Balísi? *what about these new fellows who are there* (*at*) *Belize?* Moreover ka, but not ą, may be and often is converted into an aspectual verb, as in káha átubali nunį́ę binu? (*who-perfective that-be-drinking-it my-drink rum*) *who has drunk my rum?* kába áfarana? *who-will beat-me?* kába láfara *whom-will he-beat?* Besides *who*, *whom*, *what* and, in the constructions ká gía uágu and ka uái-gi, *why*, ka may also mean *which*, as in ká siuámaį bubáų hádageę? (*which agreeable she-be-imperfective-thee from-among-them*) *which* (*female*) *one of them* (*animate*) *do you like?* ibídięti tų́ ká lą tiráobai (*it-is-unknown to-her which its-being that-be-her child*) *she doesn't know which is her child.*

As a particle, átiri *how much/many?* is adjectival, as in átiri tuágu? *how much for* (lit. *upon*) *it?* since tuágu is morphologically a noun (v. **11.31** above); but more often is it verbalized as in átiriánų sá tiráhǫią láu Gibétu? (*how-many-are-they* sa *her-children by-him G*) *how many children has she with G? How* and *when* are both expressed by the adverbial particle ída, followed, in the former sense, by a progressive or an imperfective auxiliary verb, and usually, in the latter sense, by one of the tense-markers, búga or me. So, ída lį́ą sá lágoroni? (*how is-it* sa *his-biting-him*) *how did it bite him?* ída lį́ą sá badógobalí líra (*how is-it* sa *that-be-thy-*

doing-it that) *how do you do that?* ída uabá-sa lúma sábų, numáda (*how shall-we-be* sa *with-it soap, my-friend*) *what shall we do for soap, my friend?* ída tią-gi búgucu? *how is thy mother?* ibídięti nų́ ída lį́ą lá bálodo arúmuga bináfi (*it-is-unknown to-me how it-is its-being thy-lingering to-sleep morning*) *I don't know how you can go on sleeping in the morning*; but: ída búga lágorai? *when did it bite him?* ída me badógai? *when wilt thou do it?* (This last meaning is also expressed by: ídaba badógai, in which ída has been converted into an imperfective verb with future-tense function). It should be noted that only *when*-phrases can be followed by an indefinite verb, those meaning *how* being followed by a noun or verbal noun (e.g. lágoroni *its-biting-him*), or by a subordinate imperfective verb (e.g. badógobali *that-be-thy-doing-it*). The only other words that are (in the case of the first) or may be (in the case of the second) interrogatives are locators with the theme hagá- (v. under **13** above) and forms that contain the noun halia, both having the meaning *where*.

The meaning of the adverbial particle mámai appears to be, exactly, *on account of the hindering fact that*, although it may usually be translated by *since*. It is used mainly after a statement of inability, as in: lèa-buga nadógọ dą́ le iáha bá, sią́ na adóga mámai są́dihadína *that which I did when thou wert here I have become unable to do since I have fallen sick*, or: péru sią́ti-ti lídi iráho lèa nią́ lubái-buga larúhuda uáiriai lèa lų́, mámai ámu ubáu lídą uénedo luái dą́ le básarų *but the boy could not go where the old man had shown him, since/for the world is different in dreams from when you get up*, but also as in: uíetių gíę masę́sutių sų́ mútu mámai garúe hą́ią (*they-are-dirty also they-are-without-money all people since having-king they-are*) *everybody was dirty and penniless since they had a king*. This particle is invariable and unanalysable, though possibly related historically to the negative particle máma.

As has been mentioned under **3.2,** some of the suffixes listed under decade 350 have adverbial particles as their free counterparts. So, meme (cf. suffix 352), as in báiba memé bubárau (*go-thou continuously to-thy-front*) *continue to go forward*, ugórią mémé *boys all the time*—that is, no girls. If this particle is cognate with Breton's mémé *all* (which he gives as the equivalent, in the men's speech, of sų *all* in that of the women) it is probably unrelated to the verbal particle me (Breton's menhem, mhem, meem, etc.) described under **15.2** above. Here belongs also the compound particle gubáirogo *after all* (*despite everything*), as in áhaį gubáirogo úa lubái bų́giu siélu *if after all there were no God in heaven*, (cf. suffixes 356 and 354).

The adverbial (or verbal?) particle funá *may be, can be, must be* is not to be confused with homophonous, adjectival funá *red or ripe*. Examples of the former's employment are: máma funá bugá-tia sę́su bícigubai nų́ urínauga (*is-not can-be past* tia *money which-be-thy-giving to-me yesterday*) *it couldn't have been money that you gave me yesterday*, àhá! kátau gía? tòa funá lágai—hagáų-gi? *eh! what's that? Maybe the wrapping—where is it?* Note that ágai *container* has a very wide denotation; so, with another reference it means, instead of *wrapping* (or *purse*), *embarcation* or *canoe*: tòa funá hágai adógorahatį́ų (*fem.-it may-be their-container dogó-dancers*) *it may be the dogó-dancers' canoe*, hanáimeti gía funá húia ligía (*it-is-violent* gia *must-be rain that*) *that must have been violent rain*, má funá gía ligía badógobai (*not may-be* gia *it-is-that which-be-thy doing*) *isn't that maybe what you do?* That translation often depends on context or (and) situation may be exemplified by comparing the first three words of the last utterance with that spoken by a man accused of killing his mother-in-law, má funá gía (*that*) *can't be* (*so*), and followed by an alibi. Further examples of the use of funá are: halíaiąru funá? *where may she be?* and ída tįa funá-ti uáiriau tugúra? *how may yon old woman be?* or íneme funá-ti buga iéregutu hamúlelua tòa háų *surprising as it may be, this younger sister of*

theirs was hated by (lit. *to*) *them*. Also the particle íneme, expressing astonishment, can not be translated out of context; so compare its function in the foregoing and following utterances: íneme sá súsuti kátai! (ineme sa *it-is-stupid thing*) *what a stupid thing!* or *isn't that a stupid thing!*

Another adverbial particle, súądą *often or always*, appears to be a compound of borrowed dą *time or weather* (from Fr. temps) with suą-, unattested as a free form or in any other combination, but which may perhaps be explained as a unique variant of native sų *all* that came into being through a rapprochement with French souvent. It is employed indifferently with either given meaning, as in: súądą tadóga hįáru tòa sábų (*often she-make-indefinite woman this soap*) *this woman often makes soap*, máma hamúga súądą lų gagúrasųbádiną lą lubá (*is-not would-be all-time for-it I-shall-have-patience for-him*) *it would not be all the time that I should have patience with him*, (in which note: 21 + gurásu *patience or courage* < Fr. courage + 211 + 201 + 111 + 101 = gagúrasųbádina).

Non-interrogative *when* may, on occasion, be expressed by a locator with the theme áhą-, as in: ábą nége drĺki lanóga, áhaį búru árabu *one drink they say he took, and then plunged into the woods*, from which (as from other examples given under **13**) it appears that áhą- can only render our *when* in the sense of *after or upon which, but just then*, or *and then*. For *when* with such senses as *at which time, at the time that, at whatever time, as soon as*, the borrowed noun dą *time*, the borrowed particle le *when*, or, most often, the phrase dą le is employed. Examples: dą nígirų kátai lídą nigídile núbię (*at-the-time my-leaving something in-it my-kettle at-my-home*) *when I leave something at home in my kettle*, dą leréderų eiéri núma (*at-the-time his-staying man with-me*) *when a man is staying with me*, lé ladáirų *when he was found* (*when his-finding*), le láfuacubái iráho (*when that-be-his-emerging child*) *when the child emerged*, dą le tátų árani (*time when her-drinking medicine*) *when she drinks medicine*, lé nége lapurícihabái (*when quotative that-be-his-preaching*) *when he was preaching*, dą le úa hamą niéí (*time when not their-being there*) *when they are not there*. It will be noticed that dą, le, or dą le, meaning *when*, must be followed either by a subordinate imperfective verb, or, as is more often the case, by a nominal form (verb-noun or phrase). In this, the particle le (from Fr. l'heure, either directly or by way of French Creole le *when*) resembles ábą (v. second paragraph of this section), which, when employed as a link between sentences or clauses (a possessed form of the nominal theme -úma *with* is used to connect nouns), is followed by a verb-noun, as in ábą ladógoni (*and his-doing-it*) *and he did it*.

A few apparently anomalous formations may be dealt with briefly; some others, such as nibágai *alive* (particle) from ibágari *life* (noun), have been mentioned under section **3**. Adverbial ámiągo ~ ámuiągo *another* (*future*) *time* and bináro *formerly*, or *long ago*, are clearly related to adjectival ámu *other* and binádo *former*; but both types of derivation are quite unproductive today, and, so far as I know, unique. Equally clear and equally anomalous is the relationship between the particles nióbui ~ ióbi *coming*, ióbo ~ iód- *going* (as in: áhaį ióbo niúbuduri líte-me *if my boss goes soon*), and the noun-stems -iábi *coming*, -ídi or -údi *going* (as in: lų nídi águiu *for-it my-going back*—that is, *for me to go back*). Since particles may regularly be converted into nouns (3 + 12 + só *ardent* = líso *its ardour*), and nouns or their stems into particles (22 + -íla ~ íla *contents* = mála *empty*), it is a matter of indifference, in these two instances of irregular conversion, which are to be considered as the underlying forms. On the other hand, aríe-me and aríe-gi, both meaning *later* (*not now*), are probably unrelated to the noun-stem -árigi *after*.

The pronominal particles of the men's speech, áu (*it is*) *I* or (*as for*) *me*, and amóro (*it is*) *thou* or (*as for*) *thee*, are the syntactic

equivalents of the locators nugúia and bugúia respectively (v. under **13**).

The so-called 'natural ejaculations' of this language may probably be said to include such forms as: óg! (with rising tone and vowel drawn out more or less according to the degree of emotion to be expressed), mà-uó! hàu-gą́! à-ú! (with falling tone on the first, and a rising tone on the second syllable), all of which express astonishment or wonder. Annoyance, impatience, or disbelief may be expressed by the widespread West Indian exclamation [ó-cɔ̀] (with rising and falling tones), or, especially in the case of men, by one of the English 'four-letter words' pronounced with varying degrees of phonetic adaptation.

A sort of vocative is formed by enclitic o! (women) or uó! or ué! (men) placed, not only after the word denoting the person or persons addressed, but often also elsewhere in the utterance; so, numádagu ó! *hey, friends!* ą́hą ó! *yes O!* náibuga túbię A aríhaų ó! *I'm going to A's home to see her O!* Such forms are used especially when calling from a distance.

Native gaió or borrowed dén (from Eng. then) is used to reinforce what has gone before, as in máma uó áu gaió! *isn't it I then!?* numáda gaió! *my dear friend!* (expostulatory). To indicate resumption of talk, borrowed uél (from Eng. well) or buénu (from Sp. bueno) is most frequently employed,—invariably followed by pause. Less formal and more often heard than native forms of leave-taking is borrowed aiaú *goodbye* (from Sp. adiós).

In view of the larger morphological constructions into which they enter, such as úati *there's none of it*, or *there isn't any*, úali *there's no more of it*, or *it's finished*, máharadítu *she won't agree*, it would be unrealistic to treat úa *No* and ą́hą *Yes* as interjections; but a synonym of the latter form, áie ~ ái (cf. Eng. ay) may be so regarded, since it takes no affix of any sort.

17. Loss or positional change of stress in particles affects particularly those, such as gía, nége, búga, mé, iébe, discussed under **15.1** and **15.2** above, and is determined mainly by context, and in part by style (speed), emphasis, etc. In ordinary colloquial speech, the set phrase lèa gía *inasmuch as* (*because, seeing that*) becomes what is best regarded as a compound particle, legé: legé ácuaha numútu-tia luágu irúmu ligíra *that's because I cut it back last year.*

The alternation—if that's what it is—of gia ~ gię may possibly be influenced by the initial consonant of a following morpheme, —or it may be free. The longer and less frequently heard variants of the numerals ábą ~ ábana *one*, bía ~ bíama *two*, occur more often before pause than elsewhere, but are mainly stylistic. On the other hand, as explained under **16** above, the choice of káisi or kái, meaning *like or as*, seems to be determined largely by context. Some speakers replace káisi by kási; and although the latter is now said to be 'incorrect', it was the only form recorded in Dominica from the seventeenth century to the present.

Types of alternation arising from affixation (derivation or conversion), such as: ą́hą ~ áhą ~ -aha- *yes or willing*, nió- ~ ió- *small* and nióbui ~ ióbui ~ ióbi *coming*, saniá ~ siá- *impossible*, and from dialectical variation, such as ru ~ u *give or put*, has been described in preceding sections (v. especially **4, 8,** and **12**).

ARAPAHO II: TEXTS[1]

ZDENĚK SALZMANN
NIAGARA FALLS, N.Y.

2.0. Introduction
2.1. The Man with the Sharpened Leg
2.2. White Man and His Friend
2.3. White Man and the Ghost
2.4. White Man and the Six Women
2.5. White Man and the Plur: 3

2.0. The purpose of this paper is to present a few selected Arapaho texts.[2] These texts were obtained from John B. Goggles, who also provided an English translation which I here reproduce with my interpolations enclosed in brackets.

All five texts are traditional narratives telling of the adventures of the popular Arapaho trickster—nih?óóθoo. Of uncertain etymology, nih?óóθoo means both *white man* and *spider*; it is translated below as *White Man*, since in these and other Arapaho tales it refers to a character entirely human.[3]

How the present material was collected may be of interest. All texts of this collection were phonetically transcribed directly from the speech of the informant. The narratives thus obtained were then read to the informant, who retold them into the microphone of my wire recorder; he himself usually determining the pauses. Needless to say, it is this last recorded version which is given below, in phonemic transcription. Periods and spaces of the lines of the Arapaho text mark pauses and junctures respectively. It will be noted that a given morpheme may have alternant shapes as to pitch; some of these appear to be in free variation.

The bulk of the tales narrated by Goggles in English has already been published.[4]

2.1. 1. tóóxu?óóneet. 2. nih?óóθoo héé?ix?-oowúniihísee niičiihéhe?. 3. héé?ix?itésee hinénin héé?ihnosoutóxu?óhowuu hi?óóθin. 4. néhé?inén héé?ixteestóxu?ó hí?ooθ hohóótin. 5. héé?ixse?isínen núhú?eeto tóxu?-óho? hí?ooθ. 6. hei?éétneeniistóxu?óho? hí?ooθ héé?ixtestóxu?óón. 7. wohéí néhé?-nih?óóθoo héé?ix?esoohóbee. 8. héé?ixtóó-θéésoohóbee. 9. wohéí néhé?inén tohoustóxu?óho? hí?ooθ. 10. héé?ihnóónonóó?éín. 11. héé?ihnoohóbee hííθeinóónin. 12. héé?-ihyiiščéno?oo tóónkooxčéit. 13. hóótneetóhunoo heehéxk. 14. nohnéhé?nih?óóθoo héénoo héé?ix?eeneixoohóbee. 15. héé?ix?-esoohóbee. 16. wohéí hei?iisčéno?oot toh?-eθówo?oot néhé?tóóxu?óóneet hixčébe?. 17. héé?ixko?ús hitéyei?ónin xookúúh?u. 18. héé?ixxookbísei?ínoo?oo. 19. héé?ix?etén hí?-

[1] For Arapaho I: Phonology, see IJAL 22.49–56 (1956).

[2] For an English version of **2.1**, also narrated by Goggles, see Zdeněk and Joy Salzmann, Arapaho Tales I, Hoosier Folklore 9.80–96 (1950); additional Arapaho tales containing the motif of the sharpened leg (J2424) may be found in George A. Dorsey and Alfred L. Kroeber, Traditions of the Arapaho (Vol. V of the Anthropological Series of the Field Columbian Museum, Chicago, 1903), pp. 112–113 and 257–258 (Nos. 57, 108, and 109).

For a close variant of **2.2** see No. 61 in Dorsey and Kroeber, p. 120.

For another version of **2.4** see No. 51 of the same collection, pp. 105–107.

For variants of **2.5** see Nos. 49 and 50 on pp. 101–105 of the same collection, and No. 11 (The Cannibal and the Fox) in H. R. Voth, Arapaho Tales, JAF 25.43–50 (1912).

[3] A discussion of the Arapaho trickster may be found in an article by C. Staniland Wake, Nihancan, the White Man, The American Antiquarian (and Oriental Journal) 26.225–231 (1904). See also Zdeněk and Joy Salzmann, op. cit., footnote 17 on p. 95, and Dorsey and Kroeber, op. cit., footnote 3 on pp. 6–7.

[4] Zdeněk Salzmann, An Arapaho Version of the Star Husband Tale, Hoosier Folklore 9.50–58 (1950); Zdeněk and Joy Salzmann, Arapaho Tales I, Hoosier Folklore 9.80–96 (1950); and Zdeněk and Joy Salzmann, Arapaho Tales II, Midwest Folklore 2.21–42 (1952).

ooθ. 20. héé?ihnéhé?ee núhú?enééčeen. 21. hééčisčiinoohobéít núhú?enééčeen hixčéno?-ooθóon héé?ihnéhé?ee. 22. núhú?ooθóó?o? henééčeenó? héé?ixčeθkóóhunó?. 23. néhé?-tóóxu?óóneet héé?ix?oxóu?eí?oo. 24. heniisíítenówoonoo henééčee kooxčéit héé?ix?íi. 25. wohéí néhé?nih?óóθoo hé?nee?inihííθoot núhú?tóóxu?óóneeníθ. 26. wohéí koohečíí-ni?béto núhú?eestóxu?óóneen héé?ix?iyííθee. 27. wohéí néhé?inén tóóxu?óóneet heesínihiihók. 28. hoowúúni neihowbéi heeθéihók. 29. néhé?nih?óóθoo héénoo héé?ihnihi?inéí héé?ixčeneeyohowúnihííθee. 30. wohéí heesínihiihók néhé?tóóxu?óóneet. 31. henéíní?biinéθen hohbéébeet heneičiinó?on níístoon héé?ix?iyííθe?. 32. núhú?nó?ooθ niistonó-unowóó hónoot híni? nooxow nónoo?óú-hunóóni nohné?nii tonóunowóó heeθéihók. 33. wohéí hé?nee?iyiise?énouníθ hótóxu?-óhówuníθ hí?ooθ. 34. wohéí néhé?nih?óóθoo hé?né?teesčííyei?it núhú?eeto?éínókuníθ béx. 35. heebetóóxe héé?ix?itén néhé?tóóxu?-óóneet. 36. wohéí wow héé?ix?éix to?óótowuu hí?ooθ. 37. hoowóho?éé hoowóho?éé nihi?iiθoohók. 38. héé?ihbéébebíísei?íxče. 39. wohéí hooθíih?i hé?né?čiičehe?eθihéít. 40. xoxonóú héé?ixto?óótowuu héé?ixkó?eθéíhowuu hí?ooθ. 41. tiistóxu?óhówuníθ wohéí neečísee heeθéihók. 42. bí?iyéín čihnéé?-éestoon heeθéihók. 43. hé?né?čéθéí?oot néhé?nih?óóθoo. 44. hóóno? héé?ixčííčenísséé. 45. héé?i?itésee hííθeinóónin héé?ixθí?-óókuun. 46. xoxonóú hé?nééhíísexčéno?oot. 47. wohéí toon hónounixkoxčéit heehéxk. 48. héé?ixko?ús héétounixkoxčéiníθ héé?-ihnéhé?ee. 49. héé?ixkoyéín hí?ooθ. 50. ·vúhó? heehéxk. 51. héé?ihnóoθčéθéí?oo héé?ixčííteeníhee. 52. wohéí hé?né?čéθéí?oot čí?·héé?eθebííčisisééθi. 53. héé?i?itésee hííθeinóónin. 54. wohéí kóóx hé?néé?ixčéno?-óóθoot. 55. tóón hónounixkoxčéit heehéxk. 56. héé?ihnéhé?ee kóóx héé?ixčííteeníhee héé?ihbí?koyéín hí?ooθ. 57. héé?ihnóoθčé-θéí?oo. 58. hííθe? héé?eθebeenéísisééθi čí?ee?-itésee hííθeinóónin. 59. wohéí hé?né?čéno?-óóθoot kóóx. 60. tóón hónounixkoxčéit heehéxk. 61. wohéí héé?ihnéhé?ee. 62. wohéí čeeséy čenii?íiso?óótoot. 63. wohéí čí? hé?né?čéθéí?oot. 64. héé?eθebíí?isééθi hííθe? toho?eθebeeneiníseet. 65. héé?i?itésee hííθ-einóónin. 66. wohéí kooxéé?ix?čéno?oo. 67. hínee hónounixkoxčéit nenéénit heehéxk. 68. kooxéé?ihnéhé?ee. 69. kóóx hesííyei héé?ihnóoθčéθéí?oo. 70. wóóbenéeθtóót wóó-benéeθčéno?oot yéín. 71. hé?né?čéθéí?oot kóóx. 72. heθebeeneiníseet hííθe? hee?eθe-beenéí?isééθi. 73. kóóx héé?ix?itésee hííθ-einóónin. 74. wohéí heenesih?iiníh?i hé?-néé?ixčéno?oot. 75. héé?ixko?ús héétounix-koxčéiníθ. 76. héé?ixčiinéhé?ee. 77. héé?-ixčiičesíínoo?oo héé?ix?iinítooθíbe? héé?ix-tóotó?oxóne? héé?ix?iintókohúbe?. 78. héé?-ixxóónoo?oo héé?ix?eenesisíbe?. 79. hoonii héé?ix?iisčesííyei?íxče. 80. nohnúhú?ooθítóo heeθé?itóhéénoo?. 81. néhé?nih?óóθoo hee-sinoohowóóθi hineníteeno hééstooníθi ti?-iibééto nééhééstoohók. 82. tíh?iičééčebé?-éítoohók. 83. hé?né?nix?eenéistoot. 84. nohnéé?ei?ísé? núhú?ooθítóo.

2.1. 1. The man with the sharpened leg. 2. White Man went down the river. 3. He came up to a man who was sharpening his leg. 4. This man put his leg on a tree to sharpen it. 5. It [the tree] was lying where he was sharpening his leg. 6. When he had sharpened his leg, it was really sharp. 7. Now this White Man watched him. 8. He watched him closely. 9. Well, this man had sharpened his leg. 10. He looked around in all directions. 11. He saw a herd of buffaloes. 12. He jumped toward one [buffalo] which was fat. 13. "I'm going to kill it for myself," he said. 14. And so this White Man was carefully watching him. 15. He was watching him. 16. Well, this Sharp Leg jumped and went up through the air. 17. He hit through the [buffalo's] shoulder. 18. His leg went through. 19. He took out his leg. 20. He killed this buffalo. 21. While this buffalo —the one he [Sharp Leg] was jumping at— didn't see him, he killed it. 22. The rest of the buffaloes took off. 23. This Sharp Leg smiled. 24. "I got myself a buffalo, a fat one," he said. 25. Well, this White Man asked this Sharp Leg: 26. "Now, can you

give me your power, the way you sharpen your leg?" he asked him. 27. Now this man, Sharp Leg, this is what he said: 28. "No, I don't give it away," he said to him. 29. This White Man really kept asking, he kept asking right along. 30. Now this is what Sharp Leg said: 31. "I could give it to you only if you don't do it often," he told him. 32. "The way I use this leg of mine [is] when I really don't have anything [to eat], and that's the time I have to use it," he said. 33. Now he [Sharp Leg] got ready to sharpen his [White Man's] leg. 34. Now this White Man put his leg where the log was lying. 35. This Sharp Leg took a big knife. 36. Now he was just about touching his [White Man's] leg. 37. "Wait! Wait! he [White Man] told him. 38. He straightened his leg. 39. Well, the next time he [Sharp Leg] didn't listen to him. 40. He struck right away and cut a chunk out of his leg. 41. When his leg was sharpened, he [Sharp Leg] told him "Go now." 42. "Do this just four times!" he told him. 43. That's when this White Man left. 44. He didn't go very far. 45. He came to a herd of buffaloes who were grazing. 46. He jumped right away. 47. "Well, the fattest one," he said. 48. He hit the one which was fat and killed it. 49. He pulled out his leg. 50. "Got it," he said. 51. He walked away without touching it. 52. Well, he went on some more, I wonder how far he went. 53. He came to a herd of buffaloes. 54. Well, again he jumped. 55. "The fattest one," he said. 56. He killed it again but he didn't touch it; he just pulled his leg out. 57. He left. 58. He walked over there some place and again he came up to a herd of buffaloes. 59. Well, he jumped again. 60. "The fattest one," he said. 61. Well, he killed it. 62. Now, one more coming to him. 63. Now again he left. 64. He went some distance over there and walked around. 65. He came up to a herd of buffaloes. 66. Well, he jumped again. 67. "That fattest one itself," he said. 68. Again he killed it. 69. Again he went away without touching it. 70. Now he's through, he jumped four times. 71. He started out again. 72. He walked around and walked over there some place. 73. Again he came up to a herd of buffaloes. 74. Well, he jumped anyway. 75. He hit the one which was fat. 76. He didn't kill it. 77. He [White Man] didn't get loose; he [the buffalo] dragged him, he kicked him, he was scared of him. 78. He [White Man] was hanging and was hurt. 79. After a long while he got loose. 80. And this is the way the story goes. 81. This White Man, whatever he saw people doing, he used to want to do it also. 82. He used to do it past limits. 83. That's what he used to do. 84. And this is the end of the story.

2.2. 1. nih?óóθoo nohoniiteh?éího. 2. nih?óóθoo tih?iičíínooniseehék. 3. nih?óóθoo héé?ix?oowúniihísee niičiihéhe?. 4. héé?ix?-itét níyiinon héé?ix?ótee. 5. héé?ixtoo?úsee heeθe?éíteení?. 6. noo?úseenoo koohéntóótíín heehéxk. 7. heé heehéxk néhé?inén. 8. číítei heeθéihók. 9. čenixčenííseenoo toxčihnotiihéθen. 10. niinítówooθéθen heeθoohók núhú?inénin. 11. niibéétox?iniiteh?eihibéθen heeθoohók. 12. heé hóótnííniiteh?eihibéθen. 13. wohéí héé?ix?iniiteh?eihéíbetíno?. 14. héé?ix?oonooθítóónetíno?. 15. koohóótčiibiiθíhbee heeθoohók nih?óóθou. 16. heé čeenííseenoo héésinéénoo heehéxk nih?óóθoo. 17. néhé?inén héé?ix?é?itowúúnee hiníín. 18. híise?énóuu hóótbííθiwóónot neiteh?éí. 19. wohéí néhé?inén héé?ixkóheyii héé?-ihnouté?éín. 20. héé?ix?eenét néhé?inén hiičiičiiníí?. 21. yéín héé?ihnéé?eesínihiit. 22. héé?ixčiwoteíseenó? hineníteenó? héé?-ihwoteičiinéyéíno?. 23. néhé?inén héé?ihnóe. 24. héé?ixči?ténoséíno? héé?ixčííténoséíno?. 25. néhé?ísei héé?ihbííθiwóót hoséíno?. 26. tohousííθíbeet néhé?ísei héé?ihbiiθíhno?. 27. nih?óóθoo héé?ix?ixkóte. 28. wow hóótče?-íseenoo heehéxk nih?óóθoo. 29. nii?óuubé-hinoo tohousbiiθíhinoo heehéxk nih?óóθoo. 30. hečíxčéítoon niisíis hii?íih? heehéxk nih?-óóθoo. 31. hóótbíí?iitíín néyei tóóθíih?i niičiihéhé?. 32. heé hóótnééθebíseenoo heeθéihók hiniiteh?éího. 33. nih?óóθoo héé?-ixče?eečkóo. 34. héé?ixče?enoeečkóó nih?-óóθoo. 35. nih?óóθoo héé?ix?eeneinǫ́ó?ei.

36. hoséino? héé?ihno?úxotii. 37. héé?ix?-ítowúúnee hiníín. 38. neitéh?éí hóótno?úseet heeθoohók hiníín. 39. héé?ihníísiníno hitóónoho. 40. héé?ix?eeneiseinéébee hootneenéístooníθi. 41. hííθe? hóótkotóúsinénee heeθoohók. 42. hóótči?čéheθhínee yéín hóótnihíínoo hiičiičiinií?. 43. yéín beeθínihiinóóxk hóótčixčíínkuutíínee hoséino?. 44. hóótnéxče?eséénee hóótkotóúsinénee hónóót néhé?inén čéθéí?oohók. 45. wow héé?ihbihi?-inóúu?óó. 46. híitúúk néhé?inén héé?ihno?-úsee. 47. noo?úseenoo béé heehéxk néhé?-inén. 48. xoxonóú číítei béé heehéxk néhé?-nih?óóθoo. 49. héé?ihni?íθečóóno? héé?ix?-oonooθítóúhunó?. 50. héé?ihnótónee hiniitehe?íího kohóóčiibiiθíh heeθoohók hiniitehe?-éího. 51. heé héésinéénoo heeθéihók hiniitehe?íího. 52. wohéí hóótnístóónoo heehéxk nih?óóθoo. 53. héé?ixkóhóyii héé?ihbisé?éín. 54. hiičiičiinií? heehéxk. 55. neniisí?owóóni?. 56. nenéesí?owóóni? héé?ihbéex béésínihii. 57. hiičiičiinií? heehéxk yéneiní?owóóni?. 58. héé?ixčiiwoteičiinéyootíínin. 59. hííwó? héé?isíini heehéxk nih?óóθoo. 60. hiičiičiinií? heehéxk čeesév. 61. héé?ixčiiwoteičiinéyootíínin. 62. néhé?inén héé?ihnouté?éín. 63. hiičiičiinií? héé?ihnéeesínihiit yéín. 64. héé?ihwoteičiinéyootíínin. 65. néhé?inén héé?ixči?tén hoséino?. 66. bííθiwoonín neiteh?éí wóówóótneečkóóhunóó. 67. nih?-óóθoo héé?ihneyohníhee hitóónoho nih?íitó kotóusíneníθi. 68. héé?ihnóonókóhuníno. 69. héé?ix?esiníhe?. 70. héé?ihnínisikúhuu héé?-ix?óókootéso?onee. 71. hííθe? wonóonókohú? heh?iihoowúuθeθébe heeθoohók hitóónoho. 72. nih?óóθou ne?niihnínískóhóexkóni? hiníísoonínoo. 73. néé?ei?ísé? núhú?ooθítóo.

2.2. 1. White Man and his friend. 2. White Man always used to go to different places. 3. White Man went down the river. 4. He came to a place where a tepee was set up. 5. He stopped right by the doorway. 6. "I'm here; anyone there?" he said. 7. "Yes," said this man. 8. "Come in," he told him. 9. "I've walked a long way to look for you. 10. I've heard of you," he [White Man] said to this man. 11. "I want to make friends with you," he told him. 12. "Yes, I'm going to make friends with you." 13. Well, they were friends. 14. They were telling each other stories. 15. "Do you care to eat, friend?" he asked White Man. 16. "Yes, I'm hungry, I walked a long way," said White Man. 17. This man said to his wife: 18. "Get ready, you'll cook for my friend." 19. Now this man got up and stuck his head out. 20. This man said "Hiičiičiinií?." 21. He repeated it four times. 22. It sounded like people were making noise walking and dropping something. 23. This man went out. 24. He got meat and brought the meat in. 25. This woman cooked the meat. 26. After this woman cooked it, they ate. 27. White Man had enough to eat. 28. "Now I'm going to go back," said White Man. 29. "I feel good, after I eat," said White Man. 30. "Come and visit me two days from now," said White Man. 31. "You'll find my tepee close to the river." 32. "Yes, I'm going to visit you," his friend told him. 33. White Man went home. 34. White Man returned home. 35. White Man went out to hunt. 36. He brought some meat. 37. He said to his wife: 38. "My friend will come," he said to his wife. 39. He had two daughters. 40. He told them what they were going to do. 41. "You're going to hide over there," he told them. 42. "You're going to listen to me—I'm going to say 'hiičiičiinií?' four times. 43. When I say it four times, you'll drop the meat. 44. You'll go back and hide until this man goes away." 45. Now it was getting dark. 46. Sure enough this man came. 47. "I'm here, friend," said this man. 48. "Come right in," said White Man. 49. They both were glad; they were telling each other stories. 50. He asked his friend, "Do you care to eat?" he told his his friend. 51. "Yes, I'm hungry," said his friend. 52. "Well, I'm going to do something," said White Man. 53. He got up and he stuck his head out. 54. "Hiičiičiinií?," he said. 55. The second time. 56. The third time he said it a little louder. 57. "Hiičiičiinií?," he said the fourth time. 58. There was no sound of anything

being dropped. 59. "I wonder what happened," said White Man. 60. "Hiičiičiinií?," he said once more. 61. There was no sound of anything being dropped. 62. This man stuck out his head. 63. "Hiičiičiinií?," he said four times. 64. They heard something being dropped. 65. This man got the meat. 66. "Cook this for my friend," [he said to White Man's wife]. "I'm now going home." 67. White Man went over where his daughters were hiding. 68. They were asleep. 69. He was mad. 70. He whipped them and chased them home. 71. "I didn't tell you to go to sleep over there," he said to his daughters. 72. That's why white people switch their children. 73. This is the end of the story.

2.3. 1. nih?óóθoo nohbíitéí. 2. nih?óóθoo héé?ix?iičíínoonísee. 3. héé?ix?oowúniihísee niičiihéhe?. 4. héé?ixčenísiséé. 5. héé?ixčiibíí?-iitii hóótnítox?etéinit. 6. héé?ihnosóúsee wówéé?ihbíh?iyóón. 7. héé?ihnoohóót níyiinon. 8. héé?ihnoh?óeséíteen. 9. héé?ihyihóó. 10. heeθe?éíteení? núhú?níyiinon héé?-ixθí?óókuu. 11. hineníteen héé?ix?eenéíbetééθouwúseen. 12. noo?úseenoo nenééninoo nih?óóθoo heehéxk. 13. héé?ixčinóe hísei. 14. nenéétikotíínoo nohoéésinéénoo koonečííni?éetéín heehéxk nih?óóθoo. 15. neihoowúúčeitééb heeθéihók. 16. číítei hóótni?-inókhón heeθéihók núhú?úsein. 17. héé?-ixčíítei nih?óóθoo. 18. héé?ix?oxóbe?. 19. tóótheenéihoo heeθéihók. 20. niinótiiho?úsei nóótniiθííne?itiiwóo. 21. neihowbéétoho?úús héénoo néé?ehnísnéniinoo heebéxče?enóox heeθéihók núhú?úsein. 22. hóótnee?ex?éntóónoo hóótniiniitéheibéθen heehéxk nih?-óóθoo. 23. híθoobeininéxk hóótnítenéθen heeθéihók núhú?úsein. 24. hííθoobéínoo. hóótnee?ehniibéθen heehéxk nih?óóθoo. 25. hih?óó heetnéé?ehniibín heeθéihók núhú?-úsein. 26. benéétohnóxheenókhónoo heehéxk nih?óóθoo. 27. hee?ísibino?. 28. či?oonoo-θítóóní tóónneenéísíine?ítiin. 29. béénhéhé? héé?ix?oonooθítóónee. 30. nih?óóθoo héé?-ihnókhóúnoo?oo. 31. héé?ix?owóto?oo héí?-ínookéni?. 32. héé?ihnóónonóó?éín hixóno héé?ihnoohóót. 33. héé?ihnoúxče héé?ixtóko héé?ixčenísikóó. 34. héé?ix?etéín. 35. héé?-ihnísitóbee hineníteen héé?ixčiwoteíseen. 36. nih?óóθoo niičihnooθéθen heeθéihók núhú?-úsein. 37. nih?óóθoo héé?ixtóko. 38. héé?-ix?oxóon néhé?ísei. 39. neniiséxtonihéθen heeθéihók núhú?úsein. 40. nih?óóθoo héé?-ihno?úkóo héétox?éntooníθi hineníteeno. 41. hé?né?tihnókoxt. 42. héé?ix?ooneyóóhobéí. 43. néé?eesóóxk núhú?úúne?ítiit. 44. hineníteenó? né?nííhébiisnísíbetíθi?. 45. néé?ei?-ísé? núhú?ooθítóo.

2.3. 1. White Man and the ghost. 2. White Man was always walking around. 3. He went along down the river. 4. He went a long way. 5. He couldn't find any place where he could stop for the night. 6. He was still walking and it was already dark. 7. He saw a tepee. 8. There was light in it. 9. He went to it. 10. He stood by the doorway of this tepee. 11. He saw a person walking around like a shadow. 12. "I'm here," said White Man. 13. A woman came out. 14. "I'm tired, I'm hungry; can I stop here?" asked White Man. 15. "I don't have any visitors," she said. 16. "But you can come in and stay overnight," said this woman. 17. White Man went in. 18. She fed him. 19. "Where are you going?" she asked. 20. "I'm looking for a woman to live with." 21. "I don't want to get married; that's why I'm always alone; you might leave me again," said this woman. 22. "I'll stay with you, I'll help you along," said White Man. 23. "If you mean it, I'll take you," said this woman. 24. "I mean it, I'll marry you," said White Man. 25. "All right, you can marry me," said this woman. 26. "I want to go to sleep soon," said White Man. 27. They went to bed. 28. "Tell me stories, [tell me] about your life!" 29. He told her stories, just a few. 30. White Man fell asleep. 31. He woke up when it was morning. 32. He looked around; he saw a skeleton. 33. He ran out; he was scared, he started to run. 34. Some place he stopped. 35. He heard a person walking toward him. 36. "White Man, I'm coming

after you," said this woman. 37. White Man was scared. 38. This woman laughed. 39. "I fooled you," said this woman. 40. White Man came to where people lived. 41. That's where he slept. 42. He was watched. 43. That's the way of this life. 44. That's why people get married in the right way. 45. This is the end of the story.

2.4. 1. nih?óóθoo nohehníítootoxúθi? híseinó?. 2. nih?óóθoo héé?ix?ixčíniihísee niičiihéhe?. 3. héé?ihbíí?íítii níyiinóno héé?ihnísootoxénníno. 4. héé?ihnoohóbee híseino héé?ix?iiníkotiiníno. 5. hei?inoohobéít nih?óóθoo noo?úseet heehexkóni? híseino?. 6. tóónniito?eniisíténoot heetnéénit neniibéít heehexkónu?úseino?. 7. héé?yixkóóhuníno. 8. héé?ihno?úxčeitonéít héétox?uθéhiníθ héé?ihyiisinii. 9. héé?ihnéénin hix?iisíténéyííton. 10. how xóubee henóókooθtóóní? heehexkóni? núhú?úseino?. 11. hoowóhó?ee hooxéhí? hootni?ítiinoo heehéxk nih?óóθoo. 12. hee?ínowoo héétóóθi? honóh?ohó? heehéxk nih?óóθoo. 13. hóótnooθóuu hóótnoxúhúnoo heehéxk nih?óóθoo. 14. héé?ixčeθikóó. 15. héé?ihnóóθee honóh?ohó? hehiyooθónníθi. 16. héé?ixčixčeθixóhée. 17. hehnííséiníθ héé?ixčee?nónee héé?ihníhobéín. 18. héé?ihno?úseenó? heetooníθi híseino. 19. híseino? héé?ixčínooehíno?. 20. hóótnonuxtíno? hóótneenéítenowóóno? híseino?. 21. hee?nóneen toh?éso?óón heeθéihók honóh?ohó. 22. hootniitóóxéékuun hóótnee?eesixóubee? heeθéihók núhú?onóh?ohó. 23. yéín hootnííhi? hóótné?čésíxčéhi?. 24. hih?óó heehéxk nih?óóθoo. 25. hé?néé?iise?énoúθi?. 26. hé?né?neyéitííθi? čeesév níís nééso yéín. 27. héé?ixčésíxčehíno?. 28. nih?óóθoo beebéi?ón héé?ix?í?to?o. 29. núhú?onóh?ohó? héé?ix?eeneisíiténeeno? híseino. 30. nih?óóθoo héé?ixčihwoonó?okóó. 31. hootnííteno? híni?níito?nihnoohowóo. 32. héé?ix?iinotinoohóbee. 33. héé?ixčee?nónee. 34. híseino? héé?ihníítootóxunó? honóh?ohó? héé?ihníítootóxunó?. 35. nih?óóθoo héé?ixčooníteθis. 36. híneeníyiinon čéése? neeníheesíseen heeθéihók híseino. 37. héé?ixčíítei. 38. betebíhehího? héé?ix?éntoon. 39. hééhitookóto húúnin. 40. heihowčííteíno? hinéno? neyeíh?e?. 41. hootnííhowče?enóhee. 42. hootnííniisonoonibéinónii. 43. nenééθi? notóónoho? heeθéihók. 44. béétoxče?enóee hininéxk hootnííhow hiiyeiče?enóe. 45. heé hootnéé?éntoonoo heehéxk nih?óóθoo. 46. héé?ihnííbee betebíhehího?. 47. néé?eesóóxk núhú?ooθítóo. 48. néé?ei?ísé? núhú?ooθítóo.

2.4. 1. White Man and the six women. 2. White Man was going up the river. 3. He came to where there were seven tepees. 4. He saw women playing around them. 5. When they saw him, the women said: "White Man has come. 6. Whoever gets to him first will marry him," said the women. 7. They all ran to him. 8. When they came to him, he pulled toward one who was pretty. 9. That was the one who caught him. 10. "That's not fair, we ought to try it over," said these women. 11. "Wait, I think I'll make it right," said White Man. 12. "I know where young men are," said White Man. 13. "I'm going over to get them; I'll be back soon," said White Man. 14. He started off. 15. He went after the young men, five of them. 16. He started back. 17. There was one more [young man] he [White Man] didn't know about. 18. They got back to where the women were. 19. The women were coming out [of their tepees]. 20. "We'll race, we'll pick out the women we want," [said White Man]. 21. "We know you, you're a fast runner," said the young men. 22. "You have to stand behind; it will be fair that way," said these young men. 23. "We'll count to four, then we'll start." 24. "All right," said White Man. 25. They got ready. 26. They counted: "One, two, three, four!" 27. They started running. 28. White Man was far behind. 29. These young men got their choice of women. 30. White Man came last. 31. "I'm going to take the one I first saw." 32. He was looking for her. 33. He didn't find her. 34. There were six women and six young men. 35. White Man was left out. 36. "You can go over to that one tepee," said the women. 37. He went right

in. 38. An old woman was in there. 39. She had a long stick for a cane. 40. "Men don't come into my tepee. 41. You will not go back out. 42. You will be the father of my daughters. 43. They are my daughters," she said. 44. "If you want to go out again, you won't go out alive." 45. "Yes, I'll stay," said White Man. 46. He married the old woman. 47. That's the way this story goes. 48. This is the end of the story.

2.5. 1. nih?óóθoo nohbéésíbino. 2. nih?-óóθoo héé?ixčíniihísee niičiihéhe?. 3. héé?-ihnoohóót béésíbino hiθóóbe? néči?. 4. héé?ix?iibéétoxbííθ. 5. héé?iinówuukóo. 6. héé?iinóónótikúútii. 7. héé?ixnonoθče?ebíx-óúnoo?oo. 8. héé?ixtóótoukúθee hoh?onóó-keeno hi?óóte?. 9. hé?néé?eyiinówuukóóhut. 10. héé?ixčiibii?ín béésíbino. 11. héé?ix-čoonče?ebíxoukóó. 12. héé?ihnéétoxoowú-noo?oo. 13. beexóóθiih? hee?ixče?eniihen-bíxoú?oo. 14. hoh?onóókeeno héé?ix?oonoo-kúnoo?oonío. 15. héé?ix?ooθiθínouθ néči?. 16. héé?ihnoohóót béésíbino hixčébe? héé?-ix?éíbiníno. 17. héé?ihnóo?úsee. 18. héé?-ixkóóko?ún béésíbino. 19. heeyóu héí?ohoo-keeníít nihi?ííθetéxk. 20. tih?iisbííbineet hé?né?ečéθéí?oot. 21. béénhéhé? héé?ihniiwoho?ún béésíbino. 22. héé?ihnoohóót wóxuu héétoxhííyei?ihníθi. 23. héé?ixčííθikúútii bées-íbino wóxuu hííyei?ihníno. 24. héé?ixčih-noúxčehníno wóxuu. 25. hííwo?heneehék nih?óóθoo héé?isex?éhin heeθéihók wóxuu. 26. wónooθéí?ii béésíbino híčebéh?e?. 27. heibeexwonko?onéébe heeθoohók wóxuu nih?óóθoo. 28. té?iyoonóh?o? nonóónókhúθi? heeθéihók wóxuu. 29. heneitoyóóhowúu néésébiho? heehéxk nih?óóθoo. 30. wóxuu héé?ihwonko?úyéíno?. 31. heixóótonéhíníθi núhú?wóxuu nih?óóθoo héé?ixteetébe?éísii núhú?wóxuusóóno. 32. héé?ixθóuxóhu?uu núhú?wóxuusóóno. 33. čése? hookuhú?eeno héé?ixče?čííčiinén níhi?iitoxnoonókóhuníθi wootííheenosounóónókóhuníno. 34. wóxuu héé?ixkóútonéhino?. 35. héé?ixčeno?úseeno? wóxuu. 36. heniiyeiheθénee heeθoohók nih?-óóθoo wóxuu. 37. hooxéíhiisóóno nih?é?tenóu heehéxk nih?óóθoo. 38. wóxuu héé?ix?é-sinééno?. 39. héé?ihbiiθíhno?. 40. čéése?-íseihihi? nééhebehe? hehnéxtičéíhihíxt hee-héxk néhé?íseihihi?. 41. čiwóoθíyiisínihii heeθéihók híínoo. 42. nih?óóθoo héé?ihbéé-toxnóe. 43. hootneečínoehínoo heeθoohók wóxuu nih?óóθoo. 44. hih?óó hetnóxheeče?-ečíítei. 45. nih?óóθoo héé?ihnóe. 46. héé?-ixčeθikóó. 47. héé?ix?éso?oo nih?óóθoo. 48. héé?ixčeníkóó. 49. héé?ihnóó?ohúsee héétox če?óteyóóni?. 50. tuxčéíhino? henís-soonínoo heehéxk nih?óóθoo. 51. héé?ih-neyohoníheeno? hiníísoonínoo wóxuu. 52. čése? hookuhú?eeno héé?ihbii?ínowu. 53. nih?óóθoo héé?ihyeihóne? wóxuu. 54. héé?-ixčeníyiikóhoee. 55. héé?ix?éih?etébe?. 56. héé?ihnéetíkoo. 57. heé heibeextónot hexkó-huneenoo heehéxk nih?óóθoo. 58. héé?ih-noohóót héé?ixtónotín. 59. héé?ixčíiθíxče héétoxtónotíni?. 60. héé?ixxookonoúxče. 61. θeneikohéíno? [in the recorded version mistakenly inserted in 65]. 62. héé?éneesínoo?oo héé?ixče?eséy. 63. héé?ixče?éítésee. 64. heitóústóóbe heehéxk nih?óóθoo. 65. nih?-óóθoo nónoonóh?oot neníísoonínoo neníí-soonínoo nix?oxobéíno?. 66. hee?ínono? nih?óóθoo hoohookéénit. 67. hóótniiteheibeθénee. 68. nih?óóθoo héé?ixčíítei héétox-tónotíni?. 69. héé?ix?eenéseinéétii héé?ix?-iiniihén kookú?učíθet. 70. héé?ixčixče?enóee. 71. tenéi?éxt niičóónčihnoúúteno?. 72. če?-číítei hetnóóxčetííbe. 73. héé?ixče?číítéíno? wóxuu. 74. nih?óóθoo héé?ihwótónee. 75. heitóústoo heeθéihók wóxuu. 76. kooheiwó-tónee. 77. hííko wótóneehíího? čeebikóóhúθi? heehéxk nih?óóθoo. 78. hehe?ístéébóútee heeθéihók wóxuu. 79. hístéébouhúúho? čeebíh?ohúθi? heehéxk nih?óóθoo. 80. hexkóó-tee? heeθéihók wóxuu. 81. kóóteehíhó? čeebíh?ohúθi? heehéxk nih?óóθoo. 82. nih?-óóθoo héé?ixčííθikúútii hisítee héétoxtónotíni?. 83. héé?ihbééséθee. 84. wóxuu héé?-ixčooninóehíno?. 85. nih?óóθoo héé?ix?-oxóon. 86. nenéxtonéhinoo heehéxk nih?-óóθoo. 87. héé?ixčéθei?oo. 88. nohnúhú?-ooθítóo wóxuu né?níí?éséínowóoxkóni? hi-neníteeno. 89. né?níí?éénečéxookexkóni?. 90. néé?ei?ísé? núhú?ooθítóo.

2.5. 1. White Man and the plums. 2. White Man was walking up the river. 3. He saw plums under the water. 4. He wanted to eat. 5. He dived. 6. He felt around. 7. He didn't stay in the water very long. 8. He tied rocks to his leg. 9. Then he dived again. 10. He didn't find any plums. 11. He couldn't come out of the water. 12. He was choked. 13. After a while he came out of the water. 14. The rocks got loose by themselves. 15. He was floating on the water. 16. He saw plums hanging above him. 17. He got out. 18. He picked plums. 19. "What makes you crazy?" he said to himself. 20. After he had enough to eat, he walked off. 21. He took a few plums with him. 22. He saw the home of some bears. 23. He threw plums into the bears' home. 24. All the bears came out. 25. "That's him, White Man, our brother," said the bears. 26. "There are a lot of plums near here. 27. You ought to go and pick them," said White Man to the bears. 28. "Our children are asleep," said the bears. 29. "I can watch my nieces," said White Man. 30. The bears went over to pick plums. 31. After these bears had been gone for some time, White Man cut off the heads of the bear children. 32. He boiled the bear babies. 33. Just the heads were put back where they had been as if they were still sleeping. 34. The bears were gone for a long time. 35. The bears returned. 36. "I have something good to feed you," said White Man to the bears. 37. "I pulled out young wolves," said White Man. 38. The bears were hungry. 39. They ate. 40. One small girl [said]: "This tastes like my tiny sister," said this girl. 41. "Don't say that again," said her mother. 42. White Man wanted to go out. 43. "I'll go out for a little while," said White Man to the bears. 44. "All right, come back soon." 45. White Man went out. 46. He took off. 47. White Man was a fast runner. 48. He ran for quite a distance. 49. He went up on a hill. 50. "How do your babies taste?" asked White Man. 51. The bears jumped to their babies. 52. They found only the heads. 53. The bears took after White Man. 54. He ran a long way. 55. They were almost catching him. 56. He got tired. 57. "I wish there was a hole where I'm running," said White Man. 58. He saw a hole. 59. He ran into the hole. 60. He ran through it. 61. They were after him in it [the hole] (?). 62. He changed to a different man and was different. 63. He came back. 64. "What are you doing?" asked White Man. 65. "White Man killed our babies; he fed us our own children." 66. "I know, White Man is crazy. 67. I'll help you." 68. White Man went into the hole. 69. He kept screaming, he scratched himself. 70. He came out again. 71. "He's strong, I can't get him out. 72. You go in and dig the hole bigger." 73. The bears went in. 74. White Man made a fire. 75. "What are you doing?" asked the bears. 76. "Are you making fire?" 77. "No, fire birds are running by," said White Man. 78. "We smell smoke," said the bears. 79. "Fire-smelling birds are flying by," said White Man. 80. "It's smoky in here," said the bears. 81. "Smoke birds are flying by," said White Man. 82. White Man threw fire into the hole. 83. It was blazing high. 84. The bears couldn't come out. 85. White Man laughed. 86. "I'm tricky," said White Man. 87. He started off. 88. And this story [tells] why bears hate humans. 89. That's why they have small eyes. 90. This is the end of the story.

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NOTES AND REVIEWS

Languages and Ghost-Languages of the West Indies

Douglas Taylor

According to a recent review in the American Anthropologist (57.650), John Rowe 'declares that we know less about more languages in South America than about any other continental area.' And as if to substantiate this remark, Norman McQuown, in the same issue of this journal (501–570), publishes a synthesis of Alden Mason's classifications of Mexican, Central American, South American and West Indian languages, together with a timely appeal for better linguistic work in the latter areas. While I heartily agree as to the urgent need for such improvement, I cannot help feeling that the present classification, in so far as it concerns indigenous languages spoken in the West Indies at the time of the Spanish Conquest or subsequent to it, complicates and obscures the perspective unnecessarily; and I shall attempt in what follows to justify this opinion.

McQuown's compilation contains two lists and a set of maps. 'The *full list* of Latin American indigenous languages is here presented in alphabetical order. Synonymous labels are listed in their proper place and are cross-referenced to the one we (i.e. in nearly all cases, Mason) have chosen as the most appropriate.' Here is given for each language: its classification (in code number), its geographical position, and a number by which it may be found on the maps. An obelisk indicates that the language is extinct; doubt as to extinction, locality, or classification being shown by a following question-mark. 'In some cases a single number does duty for a number of variant dialects of what is here considered a single language'; so that the second, numerically ordered list which accompanies the maps 'contains only the names of relatively important languages.'

Languages listed as spoken in the Antilles (West Indian islands) fall into three main groups, subdivided as follows (the data are those given by McQuown; only the arrangement, bringing together all languages said to have been spoken in the West Indies, is mine):

J.1.a. Coastal Northern Cariban
- α. Insular Coastal Northern Cariban
  - (1) CARIB; Lesser Antilles (extinct), Dominica (queried); 364.
  - (2) CALINO; Belice, Guatemala, Honduras, Dominica; extinction queried; 363.
- β. Mainland Coastal Northern Cariban

  CARINEPAGOTO; Trinidad; extinct; 367.

K.1.a. Insular Northern Arawakan (55 languages and dialects)
- α. (Lesser Antilles)
  - (1) IGNERI; Trinidad & Tobago; extinction queried; 366.
  - (2) CABRE; Lesser Antilles (extinct), Dominica (queried); 365.
- β. (Greater Antilles and Bahamas)
  - (1) Taino
    - (a) TAINO OF HAITI & SANTO DOMINGO; extinct; 359.
    - (b) TAINO OF PORTO RICO; extinct; 360.
  - (2) Sub-Taino
    - (a) SUB-TAINO OF CUBA; extinct; 354.
    - (b) SUB-TAINO OF JAMAICA; extinct; 356.
  - (3) CIGUAYO; Santo Domingo; extinct; 358.
  - (4) LUCAYO; Bahamas; extinct; 357.

Z.39. Single Unclassified South American Languages

CIBONEY OF CUBA & ISLE OF PINES; extinct; 352.
MACORIXE; Cuba; extinct, 353.
MAISI; Cuba; extinct; 355.
CIBONEY OF HAITI; extinct; 361.
GUACCAIARIMA; Haiti; extinct; 362.

All of the sixteen languages listed above have been given distinctive numbers, and so have presumably been considered 'relatively important'. We are told that three of them, two Cariban (Carib and Calino) and one Arawakan (Cabre), are or were spoken in the small island of Dominica (305 sq. mi.) and (in the case of Carib and Cabre) other of the Lesser Antilles, or (in that of Calino) in Dominica alone of the Lesser Antilles and in 'Belice' (Anglicè British Honduras), Guatemala, and Honduras. Now this is very surprising; for Father Raymond Breton, who spent altogether five years among the Indians of Dominica at a time (between 1641 and 1653) long before this island was occupied by Europeans, mentions the presence there of only one people, whom he calls 'Callínago, *c'est le veritable nom de nos Caraibes insulaires, . . . les femmes les appellent* callíponam.' Moreover, although he speaks of 'le langage des hommes' and 'le langage des femmes' and lists in his dictionaries a considerable number of words of Cariban (more precisely, Galibi) ancestry, he refers to both as belonging to 'la langue Caraibe'; and the description he gives of this language in his Grammaire Caraibe clearly shows it to be, despite the name, Arawakan (see now Taylor, 1954).

Armand de la Paix, Breton's contemporary and colleague, notes in his Relation, written in Guadeloupe, under the year 1647: 'Les isles esquelles on peut travailler et *les habitants desquelles ont une mesme langue sont la Dominique* où les Sauvages sont bien quatre ou cinq mille, *la Grenade, Saint Vincent* des isles où ils sont sans nombre, et *la Martinique* où les Pères de la Compagnie de Jésus ont désja commencé de travailler heureusement' (in Rennard, 1929; emphasis added). Except for Trinidad, which was occupied by quite different tribes, the Indians had by then been expelled from the other islands of the Lesser Antilles.

Certainly, enough time had elapsed between Columbus' discovery of Guadeloupe in 1493 and Breton's arrival there with the first contingent of French settlers in 1635 for one or more languages to have become extinct. But it should be remembered that none of the Lesser Antilles was occupied by Europeans before the second quarter of the seventeenth century; and if any account, prior to Breton's, of a language or languages spoken in one or the other of them is extant, I have not heard of it. So far as I know, the only other report of an Amerindian language spoken in these islands is a short sketch (Rat, 1898) of the same dialect as Breton described, at a later stage in its history. Certainly there is enough linguistic evidence to give strong support to native tradition of a prehistoric Carib invasion of these islands; and it must be supposed that the invaders themselves spoke a Cariban language. But the fact that this men's speech had degenerated, by the middle of the seventeenth century, into a jargon (largely consisting of Cariban lexemes used in conjunction with Arawakan grammatical morphemes), leaving the Arawakan women's speech virtually intact, seems proof enough that it did not become the first language of their progeny. And if it did not, can we speak of a Cariban language as indigenous to the Lesser Antilles (again excluding Trinidad)?

Another language said to be spoken in Belice, Guatemala, and Honduras is Carib (Black) (263), which, as H.4, is grouped under Unclassified Middle American Languages, and is cited by McQuown as an instance of '*pidginized or Creolized languages* . . . (Cariban? Arawakan? English influence? French influence?)' (565–6). I have previously (Taylor 1952) summarized the relationship between this language and that spoken until recently in Dominica by saying: 'morphology, basic vocabulary, syntax, and phonology show, in that order, decreasing

degrees of sameness. It is evident that these dialects are very close together; and their differences, in the first three categories, minimal. However, the phonology differs to such an extent, especially with regard to stress accent, that a Carib-speaking Dominican Indian of fifty years ago and a Black Carib of today would hardly understand more than an occasional word or phrase of each other's normal speech, although very deliberate articulation on either side might achieve considerable intelligibility.' Unless these statements are erroneous, it seems to me that there can be no question as to 'the genetic identity of the basic structure', which must be the same in both cases. And although the amount of loan material is undoubtedly large, it is proportionally smaller than in English. Nor is there any evidence of simplification in morphology and syntax such as might be the result of pidginization; while in its phonology, this modern Central American dialect shows more phonematic oppositions than existed in the language of Dominica. It is true that some differences in the distribution of the phonemes point to dialectal differences in the West Indies; so Black Carib acíga *to dig* and árigi *after* cannot have developed FROM their Dominican equivalents, asíka and árisi, although they are doubtless cognate with them and with their Lokono (True Arawak) equivalents, atika and adiki. Nevertheless, an old Dominican Carib woman, whose mother had come from St. Vincent, assured me that these dialects were mutually intelligible although, as she said, somewhat different.

In the absence of evidence other than I have been able to find, I can only conclude that there is only one historically attested and relatively important language indigenous to the Lesser Antilles (excluding Trinidad), that it should be classified under Arawakan, and be restrained from going under confusing aliases (although what name be fixed on is of little importance).

What little is known of the languages of Trinidad appears to be contained in de Laet's short lists, collected in Trinidad in 1598, of Lokono (Arawacoe, Arowagoe, Arvaca, etc.), Jaoi (Yao, etc.), and Shebayo (Shebaio, Salvaio, Sepoye, Sapoye, Hebaio, etc.). These lists contain only the words for *father*, *mother*, *head*, *ear*, *eye*, *nose*, *mouth*, *teeth*, *leg*, *feet*, *tree*, *bow*, *arrows*, *moon* and *sun*, but some of them include a pronominal prefix of the first person (both singular and plural are illustrated in all three lists), and it seems safe to say that they bear witness to the existence in the island at that time of three distinct Arawakan languages. The linguistic affiliation of the Nepoyo or Nepoye does not seem to be known, while that of the Carinepagoto is assumed from their name, which is Cariban. McQuown does not mention Trinidad as one of the places where Arawak (502,—i.e. Lokono) is or was spoken, and does not even list the other two languages sampled by de Laet. As for his Igneri (366), I must admit to ignorance of the evidence for this language's existence (unless it be an alias for one of those just mentioned); having previously met with this word only as the name given to an archeological culture.

Little need or can be said about the remaining languages and their classification. The sub-groupings of Taino, Sub-Taino, Ciguayo, and Lucayo have presumably been made on the basis of greater and lesser degrees of understanding shown by Columbus' interpreters in their travels from one district or area to another; for surely what remains of the vocabularies recorded from native speakers is insufficient for such a purpose. Pedro García Valdes writes (in the Handbook of South American Indians, Vol. 4, p. 503): 'Nothing is known of the *Ciboney* language beyond the fact that it was probably different from both the *Arawakan* and the *Cariban*'; and since, according to Rouse (*l.c.* p. 497), 'It is commonly assumed that the *Ciboney* came into the West Indies from Florida', it seems strange that they should be credited with two relatively important South American languages, even though qualified as 'unclassified'. Rightly or wrongly, the name 'Macorixe' (or Macorige) has usually been taken to be synonymous

with 'Ciguayo'; and it would seem from what we are told by the chroniclers that while a part of the Haitian (using this adjective in reference to the whole island) people so called spoke what may be termed an aberrant dialect of Taino, another section had a distinct language (of which only two words are recorded, tuob *gold*, and 'a negation', baeça or baeza). Are the speakers of Cuban Macorixe (353) known to have been related to the latter?

By far the greater part of our indigenous linguistic material from the Greater Antilles and the Bahamas consists of personal and place-names; but it may be not too optimistic to hope that by careful study and comparison these may yet yield valuable information concerning the old languages and dialects of this area. However, granted that Las Casas may well have been mistaken, or exaggerating, when he wrote: 'En todas estas islas eran una lengua y mismas costumbres', I can find no warrant for distinguishing six relatively important Arawakan languages, spoken at the time of the conquest or subsequent to it, in this group of islands.

Leaving aside, then, the two Cariban 'ghost-languages', Carib (364) and Calino (363), and the unclassified and presumably non-Arawakan languages of Cuba and Haiti, about which we know absolutely nothing, there remain: the probably Cariban language of the Carinepagoto, and, it would seem, at least three Arawakan languages of which Lokono (Arawak, 502) was one, all spoken in Trinidad, another Arawakan language that I have hitherto called Island-Carib but that seems to be the same as that here called Cabre (365) (perhaps the native name in its recent Dominican form, Karíphuna, might be adopted), spoken in other of the Lesser Antilles, and, in the Greater Antilles and Bahamas, a number of Arawakan dialects that should probably be grouped together—perhaps as macro-Taino.

Only two of these languages are in use today: Lokono and the Black Caribs' dialect of Island-Carib; but published material on the Dominican dialect (which became extinct about 1920) is quite adequate for purposes of comparison. Whether the phonematic system of Taino is recoverable from the meagre records seems very doubtful; but something in this direction might be done by one conversant with the phonology of Spanish, Catalan, and Italian during the early part of the sixteenth century, and with the spelling habits of the native speakers of these languages at that period. On the other hand, there is some slight indication that Taino, Lokono, Goajiro and Paraujano underwent a period of common development in which the Arawakan-speaking, linguistic ancestors of the Island Carib did not share (v. Taylor and Rouse, 1955).

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Dominica, British West Indies

Russian Decipherment of the Maya Glyphs

Tor Ulving

In his recent book A study of writing, the well-known Orientalist Ignace J. Gelb devotes a chapter to what he calls 'Forerunners of writing'. Here we find (56) the following paragraph on the Maya writing system: 'The best proof that the Maya writing is not a phonetic system results from the plain fact that it is still undeciphered. This conclusion is inescapable if we remember the most important principle in the theory of decipherment: A phonetic writing can and ultimately will be deciphered if the underlying language is known. Since the languages of the Mayas are still used to-day, and therefore well known, our inability to understand the Maya system means that it does not represent phonetic writing.'

The passage quoted reflects the defeatist attitude prevailing among leading Maya scholars at present concerning the possibility of interpreting the non-mathematical and non-calendric portions of the Maya inscriptions and codices. This attitude derives, as the quotation reveals, from the almost universally held opinion that the glyphs do not constitute a true writing—i.e. the graphic symbolization of the sounds of a language—but that they, possibly with some few exceptions, are non-phonetic representations of ideas or concepts, incapable of expressing the words and grammatical formatives of a language. The failure of the few advocates of the phonetic school of decipherment, with Whorf as its most outstanding representative, to produce anything but unconvincing and fragmentary interpretations of minute bits of hieroglyphic text, is commonly adduced as further proof of the 'ideographic' character of the glyphs.

It may be argued, however, that Gelb's conclusion is somewhat premature, and that our inability to understand the Maya script may be due, not to the unphonetic character of the signs, but to the possibility that no would-be decipherer has been equipped with enough ingenuity, perseverance, and familiarity with the general principles of hieroglyphic writing systems to find the key to the problem. If we are to believe the Russian newspaper Literaturnaja Gazeta of May 7, 1955, such a man has at last come forward in the person of a young student of Egyptology at Moscow University, Jurij V. Knorozov. In a long article headed Otkrytie (discovery), the paper describes how Knorozov, at the suggestion of the Orientalist Tokarev, decided to refute the well-known German Maya scholar P. Schellhas' sad conclusion, presented in the Swedish periodical Ethnos in 1945, that the decipherment of the Maya script is an unsolvable problem. We learn that Knorozov, after five years of unremitting labor, and thanks to strict application of the most exact method of scientific investigation, i.e. the Marxian dialectic method, at last succeeded in wrenching the secret from the mysterious script. And the secret, guessed at from the very beginning by the young decipherer on account of the similarity in social structure between the Maya and the ancient Egyptians and Chinese, turned out to be that the Maya writing system is a true hieroglyphic system of essentially the same type as the Egyptian and Chinese. This means that the script is composed of three types of signs: (1) phonetic, representing vowels, consonants, and syllables, (2) ideographic, representing whole words, both meaning and sound, not pure concepts, as previous decipherers would have it, and (3) 'keys', mute signs added to others to indicate the meaning of the complex. And, most important of all, one and the same sign is capable of appearing in more than one of these three functions. So far the Literaturnaja Gazeta.

It is of course with the greatest curiosity that one turns to Knorozov's own published work for further details. Are we to find in the new decipherment just another link in the long chain of foundered and often fantastic attempts, marked by such names as Bollaert, Brasseur de Bourbourg, Charencey, Cresson,

de Rosny, Le Plongeon, Thomas, or have the Maya hieroglyphs at last found their Champollion? The answer to this decisive question has to be looked for in two papers in the Soviet periodical Sovetskaja Etnografija. The first, entitled Drevnjaja pis'mennost' Central'noj Ameriki (The ancient script of Central America), appeared in the third quarter issue of 1952 (100–18), the second, Pis'mennost' drevnich Majja; Opyt rasšifrovki (The script of the ancient Maya; Attempt at decipherment), in the first quarter issue of 1955 (94–125). It should be premised at this point that the writer of the present note, not being a Maya specialist, is unprepared to assess the correctness of all details of the new decipherment presented in these papers. Neither is it the purpose of these lines to furnish a critical review. It only intends to draw the attention of specialists in this field to an achievement which, whether it ultimately turns out to be a success or a failure, has to be taken into serious account by all engaged in Maya research.

Since Knorozov's first paper seems to have been largely overlooked by those concerned, it may be permitted to devote some belated remarks to it before turning to his main contribution, the 1955 paper. The most original and valuable part of Knorozov's first paper is a vindication of the famous Landa alphabet, so often decried and declared to be a hoax or a falsification. Knorozov contends that the phonetic values ascribed by Landa to 27 Maya signs are in fact correct, and he proves his thesis in regard to some of them by applying these values to Landa signs appearing in the Dresden codex in connexion with pictures of animals. By this means he is able to read Maya names of these animals, e.g. tzu-l *dog* and cu-tz *turkey*. The signs for both l and cu in these words appear in the Landa alphabet with these values. The paper is a short one, and the number of glyphs discussed is very limited, so it is not permissible to draw any far-reaching conclusions from it. But the method seems to be sound and the results in the main convincing. The author's assertion, however, that there is no longer any question of deciphering the Maya script, but only of philological work on the texts, and that the history of the Maya is henceforth open to study in their own written records, is very far from being verified in his first paper.

A much more solid foundation for his claim to have deciphered the Maya script is laid by Knorozov in his 1955 paper. This consists mainly of three lists. The first is a table of 150 isolated glyphs with their values. The major part of the glyphs turn out to be used in a phonetic function. First in order of frequency come signs with the syllabic value of the type CV(V)C, e.g. kim, lem, baat; of such glyphs there are 53 in Knorozov's material. Next come signs which represent combinations of the type C(V), e.g. tz(u), t(i), n(a) (41 glyphs). These are usually employed in a syllabic function at the beginning of words, e.g. tzu-l, but as consonants at the end of words, e.g. cu-tz. Signs with the syllabic value of the type V(V)C are less frequent; 18 such glyphs are recognized. There are six signs for vowels, two for a, and one each for the remaining e, i, o, u. Sound combinations of the type CVCVC are attributed to two glyphs. About 35 glyphs are mainly used as ideograms, representing whole words, e.g. k'in *sun*, mul *pyramid*. The number of glyphs functioning as 'keys' is limited to five, of which two are also used phonetically. They symbolize concepts such as *Deity, fire, period of time, food, sacrifice*. Knorozov admits that 25 of the readings in his first list are hypothetical, especially of ideographic glyphs.

The second list gives 200 examples of the writing of words by means of compound glyphs. The most striking characteristic of the system—but familiar from other primitive scripts—is the frequent redundancy. Words such as bal, kab, chacte are seldom written just by means of the syllabic signs bal, kab, chac, and te—which are found in the 'syllabary'—but in order to make the reading doubly sure phonetical complements

are added, e.g. b-bal, kab-b, chac-te-e. It is also very interesting to see how the numerous affixes of the language are consistently represented in the writing. This circumstance refutes the commonly held opinion that the Maya script is incapable of rendering the inflected forms of words. Of the 200 readings in the list Knorozov admits 20 to be tentative. The third list contains 30 short phrases composed of from two to four glyph complexes.

This survey of the contents of Knorozov's published papers will have given an idea of its importance in the history of Maya glyph deciphering. For the first time the general principles of the writing have been elucidated and shown to be in accordance with the principles prevailing in other primitive writing systems. This circumstance is already a strong indication that the new decipherment is on the right track. A very considerable number of glyphs have further been assigned values that seem to fit in all combinations where they occur. And the grammatical formatives of the language have been shown to be consistently symbolized in the writing. Though there are no doubt a number of wrong and questionable details in the decipherment—and Knorozov himself admits it—it is hard to believe that so consistent a system could have been worked out if it were not essentially sound. But of course very much remains to be done. Knorozov's decipherment—at least his published papers—deals exclusively with the hieroglyphic texts of the three codices. As is well known their glyphs, owing to the writing material and the late date of the composition of these documents, often show very considerable deviation from the glyphs on the monuments of the classical period. Though it can hardly be doubted that the writing system is in principle the same in the lithic texts as in the codices, patient study will be necessary to identify the glyphs of the former. And the old monuments no doubt carry many glyphs that are not met with at all in the codices.

The key has barely been put into the lock that so long has kept the door firmly shut to the understanding of the Maya hieroglyphs, but since the key seems to fit, there is ground for hope that the door will eventually be opened wide.

GOTHENBURG

THE SUPPOSED SPANISH LOANWORD IN HOPI FOR 'JAYBIRD'

D. H. HYMES

Frederick J. Dockstader has made a contribution to the study of Hopi linguistic acculturation in a recent paper, Spanish Loanwords in Hopi: A Preliminary Checklist (IJAL 21.157–159 1955). Some of the items are queried as of dubious Spanish origin. It can be shown that the first item on the list, though not so queried, is almost certainly not of Spanish provenience; this is on two counts.

The item is: '*ʔáʔa jaybird*,/gayo. Possibly, /gaya *magpie*.' Now in Whorf and Trager's The Relationship of Uto-Aztecan and Tanoan (American Anthropologist 39.609–624 (1937)), an example is given of Aztec-Tanoan s to Uto-Aztecan s, Proto-Tanoan s: '46. se*ʔ*a *jay* to UA sa*ʔ*a (by assimilation) to Hopi sa*ʔ*a; —PT se > Tewa se· *bluejay*. But if the Tewa word is cognate with Taos su,-léna *bluebird* as is possible since Tewa e may correspond to Taos u, then the PT form must have been *su- > *sowa-, and the AT could only have been *sü*ʔ*a;'. It is clear from this that whatever the vocalism of the initial syllable, Aztec-Tanoan had a form with -*ʔ*a for *jay*, and the Hopi form *ʔ*á*ʔ*a cited by Dockstader must presumably be connected as a reduplication.

A further point is involved. Cursory survey of a number of Western North American languages shows the following forms for birds of the jay group: for *crow* Northern Sahaptin á*ʔ*a, Tsimshian q*ʔ*auq*ʔ*áu, Wasco Chinook -k*ʔ*ná*ʔ*an, Coos máqaƛ, Siuslawan maaquƛ (cognate to Coos), Nootka k*ʔ*ee*ʔ*in, imitative form k*ʔ*aak, Kwakiutl k*ʔ*an*ʔ*a, Maidu aa*ʔ*aa, Northern Paiute izá*ʔᵃ* (appar-

ent Hopi cognate), Navaho gâ·gì· (that which ga's); for *bluejay*, Quileute kʷaaš-kʷaaš, Nootka xʷaašxʷaaš (cognate to Quileute), Kwakiutl kwaskwas (again cognate); for *raven*, Nootka quʔišin, imitative qaaq, Kwakiutl Gwawʔina, Tsimshian qaq and -qáʔaqt, Wasco Chinook -kálax.

The forms have in common usually the association of a back consonant (k, q, ʔ) with a low central vowel (a). Clearly the characteristic raucous cry of these birds has induced onomatopoetic forms, though of course not inevitably (Takelma xem *raven*). And if Maidu and Northern Sahaptin forms are ultimate Penutian cognates, in all likelihood the factor of onomatopoeia is responsible for the present day parallel form of the words for *crow* in these two distant languages. (Note William Empson's discussion of such influence on Indo-European forms for 'cuckoo' as against Bloomfield's opinion (The Structure of Complex Words, p. 435).) Even were there not a presumed Aztec-Tanoan etymology for the supposed Spanish loanword, then, the great likelihood of onomatopoeia in a reduplicated American Indian bird or animal name should require the omission of ʔaʔa from the Hopi checklist.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

FIFTH INTERNATIONAL CONGRESS OF ANTHROPOLOGICAL AND ETHNOLOGICAL SCIENCES

At the invitation of the American Anthropological Association and the University Museum, University of Pennsylvania, the Vth Congress of Anthropological and Ethnological Sciences will be held at Philadelphia, from September 1 to September 9, 1956. One paper will in principle be accepted from each participant, without prejudice to additional contributions requested for presentation at General Sessions. Abstracts should be in hand by March 1, 1956. No papers with a lengthier oral reading time than 20 minutes will be accepted for publication, and publication cannot be guaranteed. Rooms in University buildings will be available to members at $2.50 per night. The registration fee is $10.00; relative of members may become Associate members, the fee being $3.00.

Inquiries should be addressed to the Secretary, American Organizing Committee, International Congress of Anthropology, National Academy of Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D. C., U.S.A. Cable Address NARECO.

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